

# American Forests *and* Forest Life



February, 1926

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**A**DEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in co-operation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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Member A. B. C.

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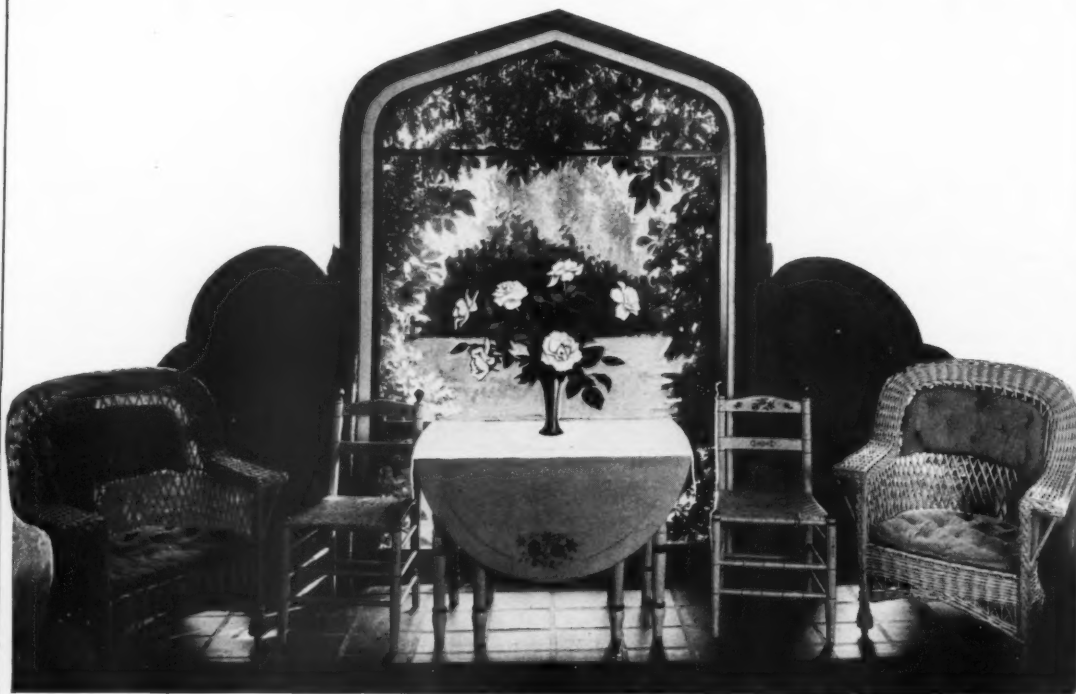
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AMERICAN FORESTS AND FOREST LIFE invites contributions in the form of popular articles, stories and photographs dealing with trees, forests, reforestation, lumbering, wild life, hunting and fishing, exploration or any of the many other activities which forests and trees typify. Its pages are open to a free discussion of forest questions which in the judgment of the editor will be of value in promoting public knowledge of our forests and their use. Signed articles published in the magazine do not necessarily reflect the views of the Association. Manuscripts must be accompanied by return postage. Editorial and Publication Office, The Lenox Building, 1523 L Street, Washington, D. C.



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# AMERICAN FORESTS

VOL. 32

FEBRUARY, 1926

No. 386

## The Forester or the Shepherd?

*Answers For America From Old World Countries  
Where the Ancient Conflict Between Forestry and  
Grazing Has Been Carried to Its Inevitable Conclusion*

By P. L. BUTTRICK

### I. The Search For Pastures

**T**HERE is a world-wide and age-long struggle between trees and grass for occupancy of the soil of the earth. There is likewise a wide-spread, ancient and bitter struggle between the interests wishing to preserve the forest and those wishing to increase the grass to support flocks and herds.

In America this struggle between forestry and grazing is not new, but it has never been severe enough to compel us to think of it in relation to conservation of life as a whole. But as time goes on and the demands for wool and meat and hides increase, and as our forests further diminish, it is destined to become more acute. It is, therefore, well that we see this struggle in its broad outlines. In the Old World it is an ancient war and has been fought out time and again to its logical conclusion, which is either forest destruction or complete grazing regulation. In connection with the attack now being made by the western

stockmen upon the National Forest system of grazing control, which is only a prelude to many more

to come unless the question is decisively settled now, we will be wise to look to the accumulated experience of centuries in the Old World and see what has happened.

**T**HE people of the United States may well turn to the experiences of some of the older countries for advice on the question now confronting them—"To what extent and under what conditions shall grazing be permitted on the 700,000 square miles of public lands in the West?"

What happens to forest lands when the shepherd becomes legally intrenched through prescriptive rights and beyond regulation is clearly written in the treeless countries surrounding the Mediterranean Sea, the moorlands of Scotland and England, the poverty and desolation of Spain.

In "The Forester Or The Shepherd?" which begins in this issue, the results of grazing in foreign countries will be presented. The author, Mr. P. L. Buttrick, has traveled extensively abroad and has gone deeply into the history of grazing in European countries. We can promise that every one of these articles will be intensely interesting and that the series as a whole will be an outstanding contribution to the public grazing problem now confronting the American people.

In Europe grazing is looked upon, not as a branch of agriculture, nor alone as an industry, but fundamentally as a type of human existence—just as we look upon agriculture. If one stops to think, he will realize that there are but four great types of human existence: the hunting, where man lives by pursuing the wild beasts; the pastoral, where he lives by his flocks and herds; the agricultural, where he lives by the crops he grows; and the urban, where he lives by trade and manufacture.

The last three types have been highly developed in modern civilization, but each retains in the minds of those who live by it something of its early outlook on life. We speak of the agricultural mind and the urban

school of thought. Our European friends are as much at home in speaking of the grazing or pastoral viewpoint—and we too must come to reckon with it.

Each of these great modes of existence regards the forest differently. For hunting peoples—if they happen to live in a forested region—the forest is requisite to existence. It shelters both them and the game upon which they live. When it perishes, they too perish, as has the American Indian.

The agricultural peoples first succeed by destroying the forest to make way for fields. But when they have driven it back to lands not suitable for crops they make a truce with it, and end by realizing that a certain amount of it is necessary.

The urban peoples at first destroy it to use its products for building and trade. Then, confronted with a scarcity of building materials and water supplies and faced with the destruction of their cities by the forces they have turned loose, they strive to protect and restore as much forest as need be.

But the men of the flocks and herds never make truce with the trees; their philosophy regarding the forest is as simple as it is destructive. It can be summed up in just six words, "The more trees the less grass."

This is as deeply ingrained into their make up as is the farmer's point of view that the more fertile the soil the better the crops, or the city man's dictum that the more trade the better the city.

This, of course, does not mean that a man in the sheep or cattle business cannot realize that forests are necessary any more than it means that a farmer cannot understand other values than those of soil fertility, or that a city man cannot appreciate that other things besides trade are valuable in civic life. But it does mean that grass is of vital importance to the grazier, soil fertility to the farmer, and trade to the dwellers in cities, and that each, as a group, will sacrifice all other things to attain what is vital to them.

The grazing industry is very primitive. It has undergone no essential change since the days of Abraham, an important sheep man of his day. Nature provides the grass, the animals harvest it. When the grass is gone, the herds move on. The range is not artificially reseeded, so more range is sought. If all the open country is over-grazed and destroyed, the forest must be cleared to allow more grass to grow. The student of human geography explains the migrations of Abraham and the tribes of Israel as searches after new pastures and more grass. The interminable wars of the desert Arabs of today are range wars, each tribe seeking more grass at the expense of its neighbors, just as definitely as the old range wars of our western prairies were for that purpose.

Agriculture has long passed out of this stage. Imagine a farmer depending upon natural seeding for his crops. When he has reached the limit of agricultural soil on his farm or his region, he turns to methods of increasing the yield of that which he has.

When the grazing industry reaches the limit of its range, it must do one of three things; increase the productivity of its lands, secure more lands, or go out

of business. When it has taken a leaf from the farmer's book and systematically sought to increase the productive capacity of its lands by cultural method and begun to produce stock under fence, it has become a branch of agriculture. Many of its members have taken this progressive step, but many have not, so that the old system in all its picturesqueness and destructiveness has been perpetuated.

A writer from France, a country where the question has been particularly acute, says, "Grazing, as ordinarily carried on, is not a system of agriculture, but a speculation based on the right to use the public domain."

It follows that grazing on public, or free range lands, as ordinarily carried on, is a migratory and destructive industry. When grazing peoples encounter a forest, they destroy it to make more pasture. Sometimes this destruction is done consciously and directly by burning or wrecking it; more often unconsciously and indirectly by driving herds into it to crop the scanty herbage and the seedlings. When the old trees die, the forest is gone, because there are no young trees to replace them.

Only in the last century and a half has human demand for timber become great enough to sweep whole forests off the earth, figuratively speaking, at a single stroke of the ax. Grazing has, during historic times, been the cause of vastly more forest destruction than commercial lumbering. There is ample evidence that it has caused the gradual disappearance of the forest from all but the more remote portions of the countries surrounding the Mediterranean Sea. It has destroyed wholesale the magnificent forests of the British Isles. It is gradually driving out the trees from whole sections of British India, Africa and Australia and will, in the end, if we do not watch out, destroy our western forests.

It is true that in all these cases climatic factors have at times worked against the forest and at other times favored it. When such a change operates against the forest, the process of destruction is hastened; when it favors it, the destruction is slowed up, but the end is always the same. Cattle, sheep and goats are stronger than trees and finally destroy them.

Forest destruction by grazing is the more deadly because it is slow and undramatic. Everyone can see the disastrous effects of fires and destructive lumbering but the fatal effects of forest grazing are easily overlooked till too late. In mountain regions, it lets loose the waters which destroy, first the mountains and then the plains, leaving poverty and desolation in its wake, ruining alike the pasture and the markets for its products. Witness Spain! In humid countries, the disappearance of the forest means the coming of a heath vegetation that drives out the stock, which cannot use it for forage. Without human assistance, the forest cannot return in any measurable time, and the land stands idle. Witness the Scotch and English moorlands!

Another great thing to remember is that the grazing people count their wealth in head of stock, not in acres or in bank balances. It is a matter of indifference to

(Continued on page 124)

# THE FOREST POLICY OF THE CANADIAN NATIONAL RAILWAYS



A CLEAN, WELL-KEPT RIGHT-OF-WAY ON THE CANADIAN NATIONAL RAILWAYS. THERE ARE OVER 500 MILES OF THIS TYPE OF RIGHT-OF-WAY IN ONE STRETCH THROUGH NORTHERN ONTARIO

By SIR HENRY WORTH THORNTON

*Chairman and President, Canadian National Railways*

CANADA is a young country of scattered population and great area. Perforce her first duty is to safeguard and to develop as wisely as she can, her heritage of vast natural resources, among which none ranks higher in importance than her forests. The time is past when any nation can, with impunity, speak glibly of "illimitable" resources. There are limits to everything as most nations have discovered to their sorrow, Canada among them. There was a time when Canada boasted of her "illimitable" forests, but she has since found that there is a limit even to the miles upon miles of trees which cover her hinterland. Fortunately she has discovered it in time to preserve those limits forever to her children if she applies sane methods in their protection. To some extent at least Canadians have awakened to their duty as trustees of the forest, and the educational campaign being vigorously promoted by our forestry associations is meeting with an encouraging response.

By word and act; by precept and example, every effort is being made by this company to further the work of forest conservation. The success of this Canadian National Railway enterprise is dependent, in no small measure, upon the preservation of Canada's forests, and when we fight for the life of our forests, we fight for our own.

The day is long past when the chief function of a

transportation company was the carrying of passengers and commodities. That is still a very important part of our work, but more important still is the safeguarding of the sources from which such traffic springs, so that the carrier shall secure this business, not once, but many times. The forests, in a hundred different ways,

contribute to the earnings of the Canadian National Railways and it is, therefore, a matter of pure, selfish business—if one cares to look upon it in that light—for us to do our utmost to prolong the life of the goose which lays the golden egg. To us, as a railway enterprise, the forests represent actual and potential freight traffic. They provide one of the most important magnets which attract tourists to Canada, thereby increasing our passenger traffic and hotel business. They are the source from which we secure many of the supplies vital to the operation of our road. They protect the water reserves from which our industries draw their power. They retain the moisture in the fields for our growing crops and



SIR HENRY WORTH THORNTON, K.B.E.

they provide work directly and indirectly for a great percentage of our population. We, as a railway company, have realized their tremendous importance and our interest can be said to be second only to the interest of those actually engaged in logging and other mill work.

There is another reason why our interest should be so



deep in this matter. The Canadian National Railways in Canada traverse nearly 9,000 miles of territory classified as forested—that is, bearing some form of tree growth. To this can be added almost 1,000 miles in the United States. Under the climatic conditions which at times prevail, the all too general use of fire in clearing operations, and the operation of coal-burning motive power in forested areas, the task of preventing fires and protecting forests adjacent to our tracks is a truly monumental one.

When we set ourselves to undertake the duty of forest fire prevention, we realized from the outset that while it would be necessary to provide the mechanical and other equipment to prevent and extinguish fires, our first task would be to secure the proper mental attitude of all members of our organization towards the work. We sought to make the development of a forest conscious-



#### ON GUARD

This is a section man on patrol. The Canadian National Railways combine track inspection with fire patrol.

ness the keystone of our forest protection policy. I think we have succeeded in that endeavour.

We established at general headquarters of the company, a forest fire prevention department and placed at the head of it a man whose experience in forestry work had covered a wide field and who brought to his duties this knowledge, plus a tactful disposition and a pleasing personality, both very necessary when the good-will of an organization is being sought. He was given a free hand. Two assistants, one in western Canada and one in Ontario were placed under his direction. The pages of the company magazine which

circulates all over the system were opened to him and articles were printed dealing with many phases of forest life. He attended as many as possible of the staff meetings and the subject of forest fire prevention was given a prominent position in every agenda. Govern-



#### PILING AND BURNING SLASH ON A RIGHT OF WAY

One of the most important phases of the policy of the Canadian National Railways in their fire protective work is the piling and burning of slash under proper conditions.



ment and technically trained foresters were made specially welcome at those meetings and took active part in them.

Later at Montreal, Winnipeg and Toronto, forest protection meetings were organized and these were attended not only by the principal regional officers of the company, but by representatives of every organization connected with forest work in the Dominion. All of the ten radio broadcasting stations of the Canadian National Railways were utilized to spread the gospel of forest protection and those messages have been heard in every Canadian province and in every State in the Union. In a little more than a year, 250 two-minute talks on forest fire prevention were given from these stations and

were better aimed than we knew.

Our next step was to demonstrate to the Board of Railway Commissioners, which adjudicates for the railways and corresponds to the Interstate Commerce Commission at Washington, the Dominion and Provincial forest authorities and the lumbermen's forest organizations, our desire to co-operate with them in the friendliest and most full-hearted manner. This appeared to be somewhat of an innovation, but the Board soon discovered its advantages, and the unity of effort has accomplished much in bringing us all nearer our goal.

In the meantime our equipment and man-power were being organized and put on a mobile footing. We placed at strategic points across the Dominion (where fire haz-



**A FIRE FIGHTING TANK IN ACTION**

These tanks are now being equipped with main hose 2½" and play hose 1½", in order to conserve the water supply and to facilitate handling.

thirty-three speeches by prominent men, including the federal and provincial premiers, were also broadcast. Almost every pamphlet published by the company has some terse, prominent reference to forests and their protection, and "dodgers" issued in co-operation with the Canadian Forestry Association and embodying fire warnings to passengers, were attached to the menu cards in our dining cars.

To such a campaign there could be only one response and results have proved that the arrows which we shot

ards were greatest) 19 fire-fighting tank cars, varying in capacity from 3,000 to 13,000 gallons. Small pack sack hand sprays which carry five gallons of water and can be shouldered by the fire-fighters, were liberally distributed and have been found efficacious in controlling right-of-way burning operations and extinguishing burning logs, ties and telegraph poles. All fire patrols were furnished with grub hoes, axes, shovels and pails, and in some instances they were mounted on small track gas cars, hand velocipedes or jiggers. In all forested

areas, emergency fire-fighting equipment is carried at the section house and is available for immediate use.

The yard and switching locomotives were equipped with a hose pipe to the injector which is specially designed for fire-fighting purposes. Continued experiments have greatly improved the spark arrester device in use on our locomotives. From end to end of something over 22,000 miles, we have kept our right-of-way clear of combustible matter and debris, and yearly we plow 4,300 miles of fireguards outside of our right-of-way on the prairies as a further protection against the spreading of fire from railway operation. Some mileage of fireguards has been plowed in forested territory with good results.

In the interim we devised and placed in effect a symbol telegraph form and general report form which is absolutely "fool-proof" and which expedites the sending of information to the nearest and right officer, on all fires which do occur. Very few other reports except those devised to record the activities of men solely engaged in fire prevention work, are required.

We have realized that causes of all fires must be determined if recurrences are not to happen and so the report of every fire receives prompt attention, is thoroughly probed, and the data secured is used to broaden the scope of our forest policy.

All this has not been accomplished without great effort and without discouragement. But the results have more than justified our experiment and amply rewarded our work. We have not suffered our enthusiasm to wane or our vigilance to relax. We do not intend to. Our record is one of which we are justly proud and one which we intend to maintain and to better.

*At one time we stood at the top of the list as a cause of forest fires in Canada. Today we are almost at the bottom.*

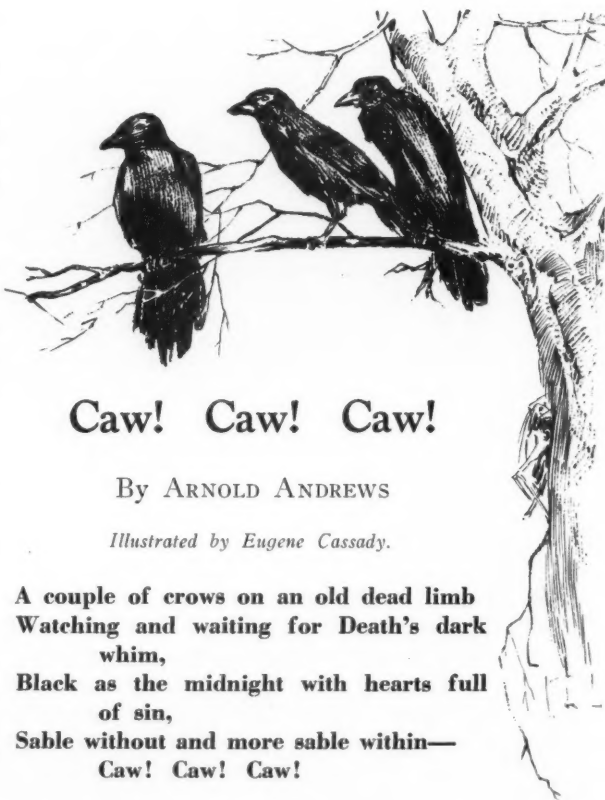
That is our achievement. And this is the one and only instance where our ambition is to sit upon the lowest rung of the ladder!

I venture to say that we have demonstrated in some small measure at least that where there exists the will to do, much can be accomplished. This we have proved conclusively; that given proper direction, the public, no less than a body of employees, can be brought to a realization of their duty as guardians of their forest wealth and as the protectors of this heritage which they hold in trust for the future generations of this land.

My personal feeling in the matter I can scarcely express more concisely than in the appeal I made for forest conservation to members of the Canadian National Railways, and which I repeat here:

"It is my personal desire that as members of the Canadian National Railways and as citizens of Canada, you pay heed to this appeal and use every effort to further the cause of forest conservation. The proper use and restoration of our forest wealth is a matter of vital

importance, and every stick of timber wasted, whether by fire or other agencies, is an economic loss which cannot be replaced."



**Caw! Caw! Caw!**

By ARNOLD ANDREWS

*Illustrated by Eugene Cassady.*

**A couple of crows on an old dead limb  
Watching and waiting for Death's dark  
whim,  
Black as the midnight with hearts full  
of sin,  
Sable without and more sable within—  
Caw! Caw! Caw!**

**A nest in a bush with both owners out  
Just for a moment to visit about,  
Falls a black shadow from out of the air,  
Owners come back and find the nest bare  
Caw! Caw! Caw!**

**The corn from the farmer whose field is near,  
Corpse of a rabbit or half-grown deer:  
All to the tribe of the crow belong—  
Carrion bird with a carrion song:  
Caw! Caw! Caw!**

**A wait for a poor wounded bird to die:  
Watching her struggles with gloating eye,  
Waiting the ending with heart full of glee,  
Chuckling and laughing at what they see—  
Caw! Caw! Caw!**

**Sable without and more sable within,  
Black as the midnight with hearts full of sin,  
Watching and waiting for Death's dark whim;  
A couple of crows on an old dead limb—  
Caw! Caw! Caw!**

# Stanfield Introduces Grazing Bill

## Conservationists See Great Menace to National Forests in Enactment of Proposed Legislation Curbing Secretary of Agriculture and Conferring Grazing "Rights"

SENATOR ROBERT N. STANFIELD, of Oregon, introduced into the United States Senate on January 16 the long anticipated bill to change the grazing administration of the National Forests. The number of the bill is S-2584. It embraces thirty-five typewritten pages, and according to conservationists, if enacted into law will, in application, render largely ineffective the control of grazing on the National Forests by the Secretary of Agriculture, and will give to the grazing industry of the west what amounts to a grant of grazing rights on the National Forests so elaborately protected against administrative regulation as to make them virtually perpetual.

An analysis of the bill fails to show any clear authority granted the Secretary of Agriculture to limit or remove stock from the forest in order that damage to forest growth or water conservation may be stopped, or where grazing conflicts with the recreational use of the Forest or the conservation of wild life. Any such attempt by the Secretary, it appears, would be subject to appeal to state boards of stockmen whose decisions would be final as to facts. Interpreting the bill further, other important features are:

1. It would establish as the policy of Congress the more complete development, protection and utilization of the grazing facilities on the National Forests as a primary use of these Forests coordinate with timber production and the protection of water resources.

2. It makes provision for definite and stabilized grants of grazing privileges equivalent to property rights.

3. It provides that these grants may be on an area basis contract, which gives to the grantee the exclusive right to graze within a specified area such number and kind of livestock in such manner and during such grazing season as he may determine.

4. While ostensibly limiting these contracts to ten-year periods, it practically grants them in perpetuity:

- a. By limiting the possible maximum reduction, either area or numbers, to five percent of the existing contract at the end of each ten-year period.

- b. By giving to the holder of the grant the preference in renewing his contract on the expiration thereof.

- c. By providing that on the death of the holder of any contract all rights under such contracts shall inure to the benefit of his devisee or of his estate.

- d. By providing that these contracts may be bought, sold and transferred.

5. In effect, it will grant these property rights to the holders of existing grazing privileges to the practical exclusion of new settlers and communities forever

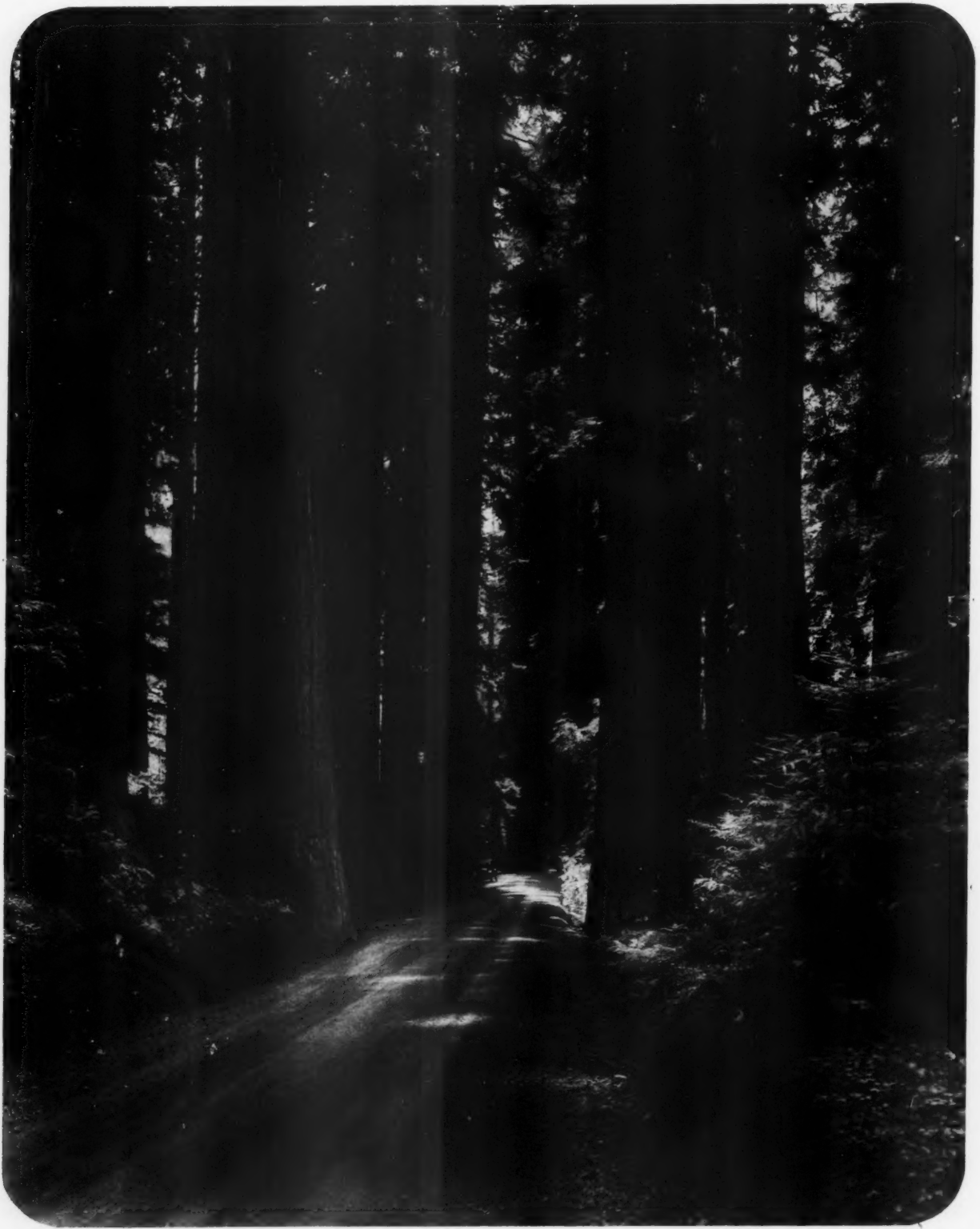
through the clause limiting the maximum reduction to five percent in ten years.

6. It will remove the present limitation as to the maximum number of stock that any one firm can graze by permitting sales and transfers of these property rights. It will, therefore, open the door to unlimited monopoly of the forest ranges.

7. It provides for appeals from the administrative decisions of forest supervisors to state boards of three men who must have practical knowledge of the range livestock industry, and who must be appointed by the President of the United States "by and with the advice and consent of the Senate." The findings of fact of these boards "shall be *prima facie* evidence of the correctness of the facts." An appeal to the Secretary over the decision of such boards would, therefore, have to be based solely upon the Board's findings of fact, a provision that practically nullifies the administrative control of the Secretary of Agriculture.

8. It provides for the reduction, release or discharge of grazing fees whenever it can be shown that adverse livestock market conditions exist in the stock raising industry or any branch thereof. It also provides that there shall be no increase in grazing fees on the National Forests prior to January 1, 1936, and that grazing fees beginning with 1936 shall be fixed with due regard to the economic value of the forage. In other words, the effect of the legislation would be to continue for a period of ten years grazing fees at the 1924 scale of charges which the Forest Service maintains is only fifty percent of the true value of the forage.

It is asserted by those who have carefully analyzed the bill that the effect of the legislation proposed by Senator Stanfield would be virtually to overturn the present grazing policy of the Forest Service. Not only will the effect of the Stanfield bill be to take control of grazing on the National Forests out of the hands of the Secretary of Agriculture, but it will lodge it in the hands of the grazing industry as represented by the grazing boards in the different states. It will create at one stroke property rights and easements more binding and far-reaching in their nature than those which have existed in European countries, for hundreds of years. In these countries such grazing rights were the primary cause of forest destruction. Once established, it has been found impossible to dislodge them except by voluntary purchase. The passage of this legislation, it is declared, will strangle the administration of the National Forests as timber-growing and water-protective properties.



*Photograph by Gabriel Moulin*

**ALONG THE REDWOOD HIGHWAY, NEAR DYERVILLE**

Here is a forest wholly out of the ordinary, the last remnant of a former era. Because of its unique and monumental character—its beauty, majesty and exceptional scientific interest, its preservation to the people of the United States for all time should be assured. This is the most urgent public park project before the nation today.



# Our Most Urgent Public Park

By HENRY S. GRAVES

*Dean, Yale School of Forestry*

THE most critical park problem before the Nation today is the saving from destruction of representative areas of the Coast Redwood in California. In many respects these magnificent trees form the most extraordinary forests in all the world. The preservation of selected portions of them as public parks before the opportunity is lost is a project requiring very prompt action, for with the exception of a few thousand acres owned by the State of California the Redwoods are in private hands. The best blocks of timber are owned by operating lumber companies. The most magnificent single area of any considerable size will soon be lumbered unless the public is able to acquire it within a short time. The company which owns this tract, pronounced by many to be the finest in existence, would in the normal process of its operations begin cutting the timber immediately and is holding off only to permit the acquisition

of the land by the public. Because of the monumental character of the Redwood forests, from the standpoint

of beauty, majesty, and sheer size and volume of timber, because of their exceptional interest scientifically, and because of the necessity for immediate action to secure their preservation for all time, we have a problem transcending in national importance that of any of the other park projects now before the public.

The Coast Redwoods are perhaps less well known than the other great scenic features of the country. Until recently they have been comparatively inaccessible. Even now they are off the usual route of travel. Many tourists visit the giant trees in the Sierras. The Mariposa and Calaveras Groves and the Big Trees of the General Grant and Sequoia National Parks are familiar to thousands of travelers. People are only just beginning in any considerable numbers to drive over the Redwood Highway which runs through the Coast Redwoods of Northern California, and the number who venture beyond



*Photograph by Lawton*

## THE ALLURING BEAUTY OF A ROAD THROUGH THE REDWOODS

This photograph was taken on the South Fork of the Eel River, looking toward Bull Creek Flat from the Dyerville Flat, in the heart of the region proposed as a public park.

Eureka is still relatively small. Yet the Redwoods constitute one of the great natural wonders of the



Photograph by H. C. Tibbitts

#### A BEAUTY SPOT IN THE PROPOSED PARK REGION

On the Eel River, at Shively, near Scotia—the Redwoods come down to the edge of the land, and find their stately beauty reflected in the quiet waters.

world. With a road running through the heart of the most representative portions of the forest, there is now the opportunity for the public to visit these amazing forests.

The Coast Redwood is a cousin of the Big Tree of the Sierras. Both belong to the genus *Sequoia*, being the only two species of the family in existence. Both trees are giants and are remnants of a former age. There is a general similarity in the reddish brown color of the bark and the form of the trees, but the foliage is quite different. The needles of the Redwood are two-ranked resembling the eastern Cypress and the Yew, while the needles of the Big Tree are scale-like and closely appressed to the twig. The mountain tree is larger in diameter but not in height than the coast species, and it reaches a somewhat greater age. Nevertheless, the Coast Redwood attains a diameter, above the base swelling, of 17 feet or more and some specimens

have been found 340 feet in height. Unquestionably many of the Big Trees are over 2,400 years old. John Muir placed the age of one giant that had been felled as approximately 4,000 years. Most of the Coast Redwoods are not over 1,200 years old, though some have been found showing over 1,600 rings of growth, and one great stump recently studied indicated an age of over 2,000 years.

The chief difference between the two species is in the manner of distribution and form of forest. The Sierra trees occur as individuals or small groups mingling with the Sugar and Yellow Pines. In viewing them one has the impression of grandeur that is created by a great mountain mass, a deep canyon, or lofty cliff. It is the occurrence of the Coast Redwoods in dense masses of enormous trees extending as far as the eye can reach that gives the forest its distinctive character. It is the final expression of what nature can produce. No picture of the imagination can do justice to this forest of giants 10 to 12 feet in diameter and towering over 250 feet in height, with straight cylindrical trunks rising 100 to 180 feet to the first

limb, and standing as close together as the growth of crowns in the lofty canopy permit. One is less impressed by the occasional tree 340 feet high and 17 feet or more in diameter than by the mass growth and the majesty and beauty of the forest as a whole. To one who is not familiar with the Redwoods the quantity of material produced seems almost incredible. Single trees have actually produced over 160,000 feet of lumber and no less than 1,000,000 feet of lumber is contained in the timber on individual acres.

Here is a forest wholly out of the ordinary, the last remnant of a former era. Time was when the progenitors of the Sequoias occurred over a large part of the northern hemisphere and even grew in parts of South America. Fossil cones of this remarkable genus had been found in Europe before the American trees were named or really known to science. We must go back some seven million years or more to find the be-

ginnings of the Sequoia forests. At one time there were at least twenty and some think as many as forty species. All but two species have become extinct. Those two are in California. The very atmosphere of the Redwood forests suggests antiquity.

The Redwood is limited to the fog-belt of the coast. Its range is confined to a narrow belt from the Oregon line south to Monterey County—a belt about 450 miles long and about 20 to 30 miles wide. But the Redwood does not and originally did not occur with any degree of uniformity over this area. It is rather eccentric in its distribution, occurring abundantly at some points, sparsely elsewhere and in many places not represented at all. So also in size of timber, character of growth, quantity of production, and beauty and grandeur of the stands, there are wide variations. Probably the original Redwood forest comprised about 1,400,000 acres. Nearly forty percent of that area has been cut over, in some places to make way for communities, agriculture, or other industrial purposes, and elsewhere in the regular process of lumbering to furnish the market with building material and products of a special character for which the Redwood is peculiarly adapted.

Redwood has been a factor in building up the north coast region of California. The lumber has been used in the construction of thousands of homes and for a multitude of general purposes. A great industry has been developed to exploit and manufacture Redwood products and many communities owe their existence and prosperity to this industry. The actual extent of the remaining supplies of Redwood is very large. Even if there should be a material expansion of the lumber plants, which is very likely, there is still enough timber to last many years. If serious reforestation is carried on as the timber is cut the future needs of Redwood products may be met. On the other hand, the forests of maximum growth, greatest beauty, and largest scientific and historic interest will be gone in a



*Photograph by Gabriel Moulin*

#### ALONG THE GREAT HIGHWAY

On this wonderful road, one drives through avenues of giant trees, with straight cylindrical trunks, towering over 250 feet in height. The very atmosphere of the Redwoods breathes antiquity.

few years. The choicest tracts are the most accessible and will be lumbered first. Many of them have already been cut in the 515,000 acres of land already cut over. They are owned by operating companies. They have been acquired for lumber manufacture and great plants have been built and financed with their use in view. The public is confronted with a business problem and must approach it in a business-like way. It is not like withdrawing a tract of public land and declaring it a National Park by legislative enactment. The lands must be acquired by purchase. In this case the purchase must be made promptly as the lumber companies in some cases have in their operations actually reached the properties most needed for public purposes, and must either

cut the timber or under a proper business arrangement dispose of the lands and acquire other properties in their places. From a scientific standpoint the Redwood forests are of exceptional interest. Probably no other forests in the country are so representative of the vegetative character of former ages. Not only is the Redwood itself one of the oldest types of tree but the character of the undergrowth, the ferns and herbaceous growth suggest ancient types and forms. There is offered an extraordinary opportunity for scientific research in this ancient natural monument that is unparalleled, something that is lacking in the old world and that can never be replaced if the timber is cut off. In the permanent interest of science there should be acquired and set aside representative tracts of the different types of Redwood, not only in the heavy stands such as occur at various points on the Eel and Russian watersheds in Humboldt and Mendocino counties, but also areas on which other species like the Douglas Fir, Port Orford Cedar, and Hemlock and Sitka Spruce occur; not only stands on the rich flats, but also on the slopes and ridges and again the typical growth at the extreme points of distribution like the picturesque windswept patches of Redwood bordering the chaparral at the southern limits of its growth.

In some cases the areas that should be preserved need not be large and the difficulty of obtaining them is not great. On the other hand, it is very urgent to acquire and hold in public ownership certain areas of considerable size on which the Redwood occurs at its best. A few scattered parcels of original Redwood forest, of second quality, inferior in form, size, and character will not do. The very best and most distinctive areas should be acquired and held for all time for the benefit of the public, for both the present and future generations. And these areas should be large enough to be really representative, not merely patches of forest so small that the death of a few trees would impair the scenic, historic, and scientific value of the tracts.

The problem has been under investigation for some

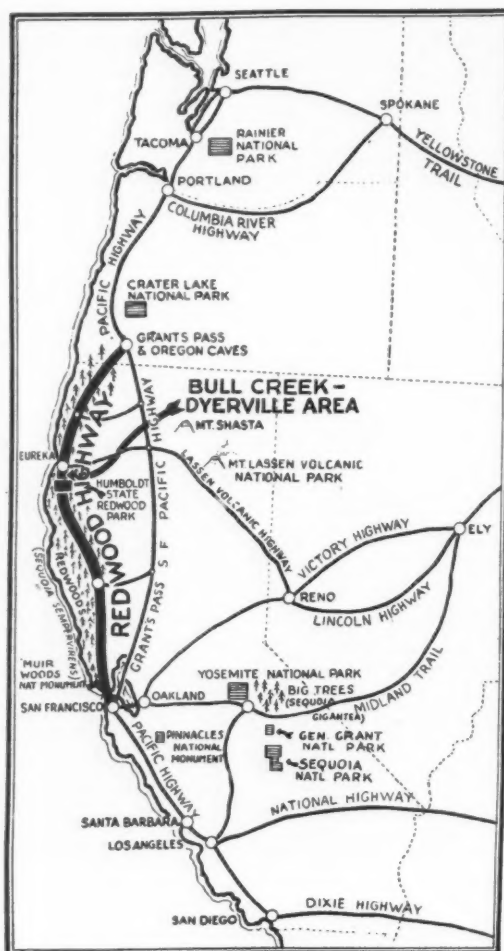
six years by the Save the Redwoods League, led by men of science and other public spirited citizens. A program has been formulated, looking to the acquisition of certain areas which should be acquired immediately and outlining a policy for obtaining later on other areas for whose acquisition there is less need of prompt action. This program is directed to four main objectives. First of

all the League seeks the acquirement of blocks and strips of timber to preserve the scenic values along the Redwood Highway which is the extension northward near the coast of the Pacific Highway. This is incomparably the most unique forest highway of our country or of any country. It affords an opportunity for every traveler to get a glimpse of the original forest; heavy stands of timber composed only of Redwood of great size; the northern type where the Redwood mingles with Douglas Fir and other species, with a marvelous undergrowth of Rhododendrons and dense masses of tall ferns; and the various intermediate types. That the public should permit this scenic highway to be scarred by the cutting of the forests immediately lining the road is unthinkable.

The second feature of the League's program is the acquisition as soon as possible of at least two tracts of substantial size of the best and most distinctive areas of Redwood. After an exhaustive

study of the whole region by the best talent available the League has directed its efforts toward two areas that stand out above all others. The first is located near Dyerville in Humboldt County. It comprises something over 10,000 acres. It includes the North and South Dyerville Flats and the large flat and nearby slopes of Bull Creek. The projected area comprises also a strip of timber lying along the highway between Dyerville and Scotia. A second projected acquisition of about 1,000 acres is on Smith River in Del Norte county, near the Oregon line. The area is smaller than the one just mentioned but it is of marvelous beauty and represents a very distinctive type of Redwood.

A third feature of the program is to encourage the reforestation after lumbering of lands throughout the



(Continued on page 106)





A COLONY OF SOOTY TERNS AT FRENCH FRIGATE SHOALS, WHERE WE WALKED INTIMATELY AMONG THOUSANDS OF LAND AND SEA BIRDS OF KINDS HITHERTO UNKNOWN TO US

## Surveying Bird Islands

By C. S. JUDD, Forester

*Territory of Hawaii*

NOAH with all of the birds in his ark did not have much on us. To be sure, he had many more different kinds of birds, but as we touched at Nihoa, Necker Island, and the low sandspits in French Frigate Shoals we had the privilege of walking intimately among thousands of the birds that before were either known to us only from a distance or were quite new to us.

At any rate, we enjoyed more comforts than Noah, for on board the sturdy mine sweeper "Tanager," a veteran of the North Sea, our morning beverage was poured from French coffeepots, toast was made at the mess table on an electric toaster, and the world's news was served to us daily by the radio operator.

Nihoa or Bird Island, the easternmost of a group of islands included in the Hawaiian Islands Bird Reservation by proclamation of President Theodore Roosevelt, rises abruptly out of the Pacific Ocean

as a small remnant of what was at one time an extensive volcanic cone. It is 120 miles west of Kanai in the Hawaiian group proper, and its 895 feet of precipitous rock looms up like Gibraltar.

Necker Island, 150 miles farther to the west is also volcanic, but is smaller, while at French Frigate Shoals, 500 miles west of Honolulu, the only pinnacle of volcanic rock is the size and shape of a small ship under full sail and this has deceived many mariners. The other islands are for the most part, merely low sand flats. All are thickly populated with sea birds of many species, as are the other islands in this same reservation which extends to beyond Midway, the cable station.

The U. S. Navy cooperated in making a thorough scientific survey of these islands in 1923 by lending the "Tanager," a mine sweeper with a crew of 52 men to transport scientists from the U. S. Biological Survey and the B. P. Bishop Museum, of Honolulu.



THE U. S. S. "TANAGER," MINESWEEPER, WHICH CARRIED THE SCIENTIFIC PARTY TO BIRD ISLANDS

The duty of these men was to collect specimens of marine, land and air life, from sea shells to sharks, lizards to frigate birds, to study all evidences of human habitation, and to bring in specimens for further laboratory study.

Scarcely were we out of Honolulu harbor that June day when the skipper and his mates doffed their spotless duck uniforms for plain working clothes, strict discipline was relaxed even to omitting the ringing of the half-hourly ship's bells, and we were a jolly, informal family in search of scientific data and specimens from the highest islands in the Hawaiian Islands Bird Reservation.

The six huge porpoises that sported at the "Tanager's" bow as we sped along with a following wind held no terrors for the landlubbers of the party and when on the second night the ship's bell jarred loose and fell on Arthur's back as he lay asleep on his cot on the gun deck, it was ascribed to just retribution for his remark that the lonely seal he had seen at Nihoa looked like the ghost of an old man.

The climax came at Necker Island when, no sooner had we anchored in fifteen fathoms of water, than the ship was attacked by a host of ill-looking frigate birds which promptly carried away the commission pennant. Technically, we were then free lances, but the practical skipper said he would run the risk in this lonely part of the Pacific and would not break out a new pennant until the return trip.

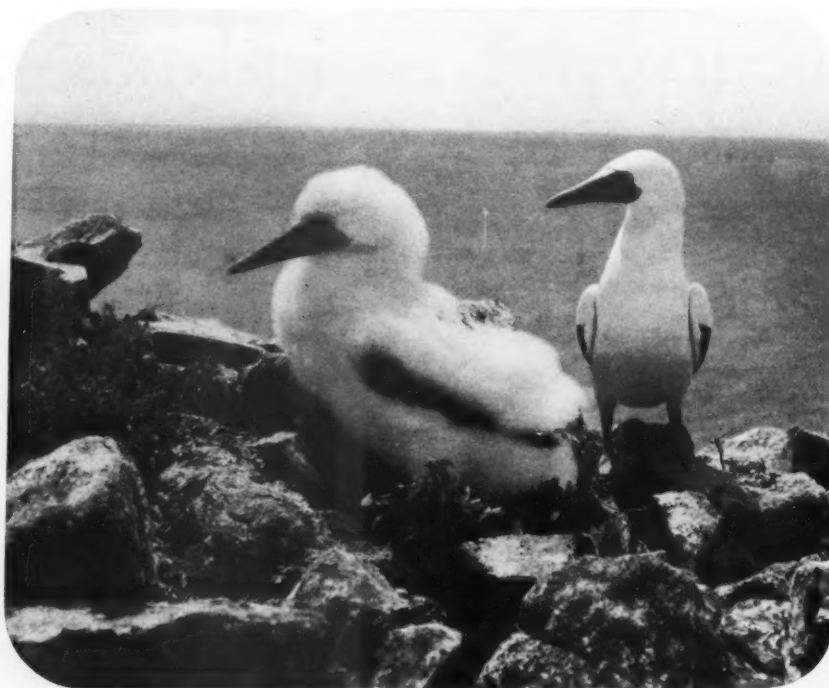
We picked up Nihoa first, at two in the afternoon of the second day out, but dusk was upon us as we approached to land half of the expedition on the large rock rising out of the ocean like a Gibraltar. The heavy seas made this no small task for the vacillating beam from the ship's searchlight at one moment illuminated the slippery, foam-smothered ledge on which the scientists were attempting a precarious landing from the lifeboat and

at the next moment plunged them into utter darkness to careen up the bushy slopes of the island, revealing thousands of flying birds which filled the air like tons of paper let loose in a whirlwind.

On the deck of the rolling ship, the Isaac Walton of the party hooked something big which, after fifteen minutes of excitement, was hauled aboard and proved to be only a six foot shark. And the shearwaters which continually dropped on deck, attracted by the cabin lights, were gleefully picked up by the initiated and handed to the novice who usually received a savage peck before he could free himself from the fishy birds.

The landing on Necker Island was easier but our camp on the ledge beside the roaring breakers was anything but comfortable. After one wetting we were

forced to seek the rocks higher up and I found a cave 25 feet up the cliff just roomy enough for my folding cot. My only bedroom companions were a pair of love birds—snow-white terns—who alternately sat upon a single egg perched perilously on a rocky ledge not two feet from my face, and I also had an occasional visit from a black crab which



"THAT BIRD THEY CALL THE 'BOOBY'"—YOUNG AND ADULT ON THE SHORE OF NECKER ISLAND

scuttled up the cliffs still wet with briny surf from below.

My particular task was to make a topographic map of each island by use of the plane table and telescopic alidade. Perched on an advantageous pinnacle, while the rodman scrambled among the birds or held the rod for my shots, I would squint through the telescope with the noisy birds flying dizzily about my head and the waves booming on the docks hundreds of feet beneath me. At night, with the sway of the vessel still in my body, these impressions would be retained and suddenly I would wake up with a start wondering whether I was still in my eerie couch or hurtling through the air into the turbulent waves below.

But it was very restful, after a hard day's work, to come in at night and share the only safe rock pool with

the friendly turtles before sitting down to a mess of fried fish caught with a throw-net by our now more successful fisherman.

Necker Island was simply crowded with the eggs and young of the albatross, frigate bird, tropic bird, shearwater, petrel, tern, and that most absurd of birds, the blue-faced booby. They had never before seen human beings and consequently were as tame as kittens. The sight of the mother birds feeding their young with regurgitated fish was novel though nauseating. And how the fledglings did fuss over their meals!

The booby is so absurd that he provokes a laugh when first seen. About the size of a very large duck, a pure white neck extends out of the body. At the end of this neck insert two snakelike eyes and between them stick in a long, sharp, yellow beak whittled out of wood,

and presto, you have a booby!

This beak is sharp and formidable. Unfortunately, the bird does not know this and so he is dubbed a booby. On account of this ignorance, he is content

to fish for the benefit of the sea-hawk or frigate-bird, for no sooner is this poltroon homeward bound with a gullet full of fish than he is pursued by these predators and squawkingly jettisons his slimy load which is scooped up out of the air before it reaches the waves.

But the most exciting time of all was when we screened the



TURTLES SUNNING THEMSELVES  
ON A SAND ISLAND IN FRENCH  
FRIGATE SHOALS



THE LANDING AT NIHOA. THE HEAVY SEAS MADE THE APPROACH MOST DIFFICULT, THE GREAT ROCK RISING BEFORE US OUT OF THE OCEAN LIKE A VERITABLE GIBRALTAR. HERE THE PRECARIOUS LANDING WAS MADE FROM THE LIFEBOAT. THE OVAL INSET SHOWS THE AUTHOR WHEN HE LATER MADE TOPOGRAPHIC SURVEYS NEAR THE SUMMIT OF NIHOA

soil from the floor of the only promising cave on Necker and brought to light for the Bishop Museum bits of stone bowls, stone adzes, fishline sinkers, charred wood, and finally the blackened remains of a human leg bone.

The camp on Nihoa was more comfortable if you did not mind bumping your head on the low but rocky ceiling of the cave or wetting of your protruding feet in a passing shower. The vegetation on this larger and higher island added interest. In the bushes before our cave the very tame miller birds stuffed themselves on huge moths, swallowing as many as seven of them whole in quick succession and the impudent finches pecked and pilfered the shearwater eggs shamelessly before our very eyes. We soon accustomed ourselves to the sudden and unbidden nocturnal visits of a shearwater which would bounce in on us. The game was to pick him up and toss him over to the next fellow without getting nipped. From the summit of Nihoa, 895 feet above the sea, a splendid view of the whole island with its six steep valleys on one side and vertical crags on the other was possible with nothing else but the wide, wide ocean. We saw only one fisherman's sampan which passed us in a rain squall.

Otherwise, the broad Pacific was bare of ship or sail.

An actual tally of all of the palms (*Pritchardia re-mota*) on the island revealed a total of 515 trees that were over three feet high and among the two dozen different kinds of plants was found an euphorbiaceous relative of the rubber tree and numerous others whose seed could readily have been transported by birds.

On the low sand islands of French Frigate Shoals, our last call, the luxury of a real camp was enjoyed and it was a comfortable relief to pitch our tents on level ground. Here we had all of the romance of shipwreck but none of the hardships, although the water in the breakers by then began to taste rather stale and warm. We had at last reached a fisherman's paradise for the shallow waters teemed with turtles, mullet and moe, which waited to be caught.

As we moved over the large lagoon in the motor-sailer surveying the size and relative position of the many small sand islands, the dark forms of swift sharks followed in our wake and even made wading ashore quite exciting.

Our camp was pitched near a populous colony of sooty terns and other sea birds in less abundance. These usually quieted down at night but the moanings of the shearwaters throughout the dark hours made the island seem like a haven of tormented souls, and the bark of the Bulwer's petrel sounded for all the world like a restless barnyard dog a mile away. But this was really a sociable camp and it was not nearly so spooky as on the rocky islands where the "Tanager" left us for days at a stretch to shift parties. Here we were all together and could always see our sturdy vessel at anchor waiting for us at the outer edge of the lagoon.

Here also we felt more closely linked with home for we were near the route of the Japanese liners and on the beaches we picked up their jettisoned electric light bulbs, vegetable crates, rubber balls and empty liquor bottles, still redolent of reminiscent gin. Besides these, there were



A COLLECTION OF WRECKAGE (WITH APOLOGIES TO THE AUTHOR, WHO INSISTED ON GETTING INTO THE PICTURE) ON THE BEACH AT FRENCH FRIGATE SHOALS—VEGETABLE CRATES, BROKEN BUCKETS, OLD LIGHT BULBS AND GIN BOTTLES, FAINTLY REDOLENT OF FORMER GLORY, CAST UP BY THE BROAD PACIFIC AND GATHERED TOGETHER, ALL UNDER GRAVE INSPECTION OF THE SOLEMN LITTLE BOOBY

dried sugar cane stalks, sea beans, kamani and kukui nuts washed over from Kauai, pumice stones which floated over from some distant volcanic eruption, Douglas fir and Oregon ash logs from the Pacific Coast, and glass fishnet floats from Japan. Our contact with the nearest other human beings, therefore, did not seem so distant although we were now 500 miles west of Honolulu.

The slips of hau bushes that we planted were soon appropriated by the birds for roosts and the sprouted cocoanuts brought to afforest the islets were rather too dry for planting. A landing on La Perouse Rock which is only about 150 feet long and closely resembles a ship under full sail disclosed nothing unusual, but when the "Tanager's" whistle sounded off Kaula on the homeward voyage Dr. Wetmore estimated that 5,000 frigate birds took to the air. It certainly looked as if the top of the island had risen.





# EDITORIAL

## Lessons from Abroad

THE attempt now being made by grazers on our public ranges in the west to entrench themselves and their herds upon the National Forests and the Public Domain must not be taken lightly. The situation is one of tremendous public importance. In the long run it affects not only the conservation of our natural resources but the conservation of life and property for a large section of our country.

One does not have to go deeply into the effects of grazing upon forests in European countries to confirm this view. Supported by prescriptive rights such as our western stockmen are seeking and strong political influence, the herdsmen of Europe have been instrumental in changing the whole physical surface of regions in which they have grazed without control for long periods. Records of attempts to control grazing as a means of preventing forest destruction go back to the Middle Ages, and the conflict is still a very live issue with some of our overseas neighbors.

Mr. P. L. Buttrick, who begins in the current number of this magazine a series of articles based upon a historical study of the relations of grazing and forests, has some very illuminating information for the people of the United States. It is timely given, and should be thoughtfully considered in working out our own grazing problem. Here are some of the conclusions which Mr. Buttrick offers.

The effect of grazing upon forests in European countries is not a matter of speculation or argument. The results have been demonstrated through long and unhappy years of conflict. European foresters, agriculturists, engineers and economists have universally recognized that grazing is, with insignificant exceptions, detrimental to the forests. Many of them go so far as to assert that uncontrolled grazing has been more largely responsible for forest destruction in Europe than lumbering. Poverty and desolation of whole regions, particularly those in the Mediterranean countries, are held to be the aftermath of unregulated grazing, and its attendant forest destruction.

In France, Italy and Spain, it has been definitely shown that large scale erosion and devastating moun-

tain torrents are due to overgrazing in the mountains. The control of these torrents in France alone has already cost the French Government billions of francs, and is not yet completed, while in Italy and Spain the destruction still goes on.

Up to almost the present day, practically all forests and grazing lands in Europe, private as well as public, have been burdened by grazing rights, held by persons or organizations not the owners of the land. These rights are a form of property and cannot, except in exceptional circumstances, be eradicated other than by purchase. Although originally of wide scope, they were never as unlimited as those demanded by the stockmen on our National Forests. Literally for centuries, European forest administrations have been struggling to curb or extinguish grazing rights, and little real forestry could be practiced until they finally attained measurable success, although even yet large numbers of rights exist to harass the foresters and reduce the yield of the forest. The right-holders have fought tooth and nail by every legal and political device to preserve their hold on public and private property.

European Governments, owing to the political strength and the deeply entrenched position of the grazing interests, have never been able to exercise proper control over grazing lands. Although an entire science of pasture management has grown up under agricultural experts who seek to regulate grazing on public lands, they frequently find themselves unable to apply their findings because of ingrained prejudices, legal rights and organized political power of the grazing interests.

Shall we in this country allow ourselves to drift in the course that has blocked forestry and spelled ruin to many regions abroad? That unregulated grazing is destructive has already been proved in this country. The condition of the Public Domain is the proof. Within recent months the question has been often asked whether or not grazing as now regulated on our National Forests is injurious to forest conditions. As Mr. H. H. Chapman points out in an article in this issue, grazing damage has been extensive and serious on some of the National

Forests in Arizona and New Mexico. In other parts of the West, the effects of regulated grazing have, on the surface, been less acute and not so clearly defined. That some damage on a number of Forests is taking place is undoubtedly true.

On the other hand, the aggregate benefits resulting from the regulation of grazing on the National Forests by the Forest Service has been tremendous. This in no

way relieves the Forest Service from the responsibility of eliminating grazing damages in the Forests as rapidly as its studies and investigations can determine them. And the point we wish to make here, drawn as a lesson from the age-old experiences of European nations, is that the Forest Service must continue to have a free hand to adjust grazing on our National Forests as forest and water interests demand.

## "Reproductive Capital Investments"

THE President of the United States is not given to idle talk. No doubt, he meant exactly what he said in singling out various justifiable expenditures under the subject of economy and branding them as "reproductive capital investments," in his annual message.

The Federal forestry askings need no apology under this heading. What, for instance, could be a more "reproductive capital investment" than immediate inauguration of a plan to purchase adequate areas of land for National Forest purposes in the country east of the great plains?

Indirect benefits which can often qualify as revenue more successfully than actual cash returns, begin to come back to the people as soon as these areas are put under administration. Cash revenue is often available

during the first year; future revenue is sure and steady under wise management. And yet in the face of all this, many people of the United States continue to let their representative in Congress go through an entire session without registering a word of demand or interest in the National Forest situation. And the busy congressman puts in his time and energy on what he thinks his people want.

Once for all a united demand must go to Congress for the passage of the law which says in effect, "We have this National Forest purchase job to do. Let us lay out a plan and do our best to clear it up in ten years. The forests must grow with the country."

Such a measure is the McNary-Woodruff bill. Put your congressman on record as supporting it.

## The Redwood Public Park

WHETHER the splendid areas of our coast redwood—the most extraordinary forest growth in the world, are to be preserved from impending destruction or are to be lost forever, is a question now awaiting decision by the people of the United States. As Col. Henry S. Graves points out in his forceful article in this issue, it is a question that must be answered immediately or the opportunity is lost. For the most magnificent single area of redwood in the United States will soon fall before the ax unless the public is able to acquire it. With commendable public spirit, the lumber company owning this tract is now holding off to permit the public to buy the land. The tract will not be on the bargain counter indefinitely.

In other cases, lumber companies have actually reached areas most needed for public purposes. They must either enter these virgin forests and destroy them or dispose of them for public use as a business transaction. The measures of preservation must be accomplished quickly—or not at all. That is why this problem of preserving areas of our coast redwood is today the most urgent public park problem in the whole conservation program.

If time permitted, it would be proper to ask appropriations from Congress for the purchase of these areas, but time does not permit. Long before the ponderous wheels of Government could be put into motion and the necessary authority obtained, the forests best adapted to park purposes will be wiped from the face of the

earth as utterly as if they had never been. Once destroyed these products of the centuries cannot be replaced, except through the slow cycle of almost countless years.

The "Save the Redwoods League" has laid out a program which includes a plan for acquiring two tracts which after an exhausted study, have been pronounced the best and most distinctive and worthy of preservation. The first is located near Dyerville, in Humboldt county, and comprises about 10,000 acres. The second is an area on Smith river, in Del Norte county, consisting of only 1,000 acres—much smaller than the first but of marvelous beauty and representing a very distinctive type of redwood.

How are these to be saved from the ax and converted into public parks? By purchase. To this end the "Save the Redwoods League" is depending on the generosity of the public. Already \$750,000 has been received from private subscription for the acquisition of the Dyerville forests, but to carry out the purchase of these areas as well as to secure the preservation of scenic strips along the Redwood Highway will require several million dollars.

From motives of science and preservation of beauty, of education and of sentiment, these redwood areas must be purchased and saved; and above all else, patriotic pride must indicate that we preserve and pass on to posterity a heritage that is unique and alone among the natural wonders of the world.

# The Grazing Menace on Our National Forests

By H. H. CHAPMAN

THE National Forests were set aside from our public domain as a protest against forest destruction and as a measure for conserving and restoring at least in part the once abundant forests of America. This basic purpose is now threatened by the tremendous growth of the grazing industry within these forests and their demands that the privileges which they have secured by administrative leniency be recognized as legal rights and thus fastened upon the National Forests forever.

The founders of our National Forest system did not fear regulated lumbering, but they had abundant evidence of the ravages of fires upon the forests. Lumbering had hardly commenced in these areas when the first National Forests were set aside, but every summer the smoke of uncontrolled conflagrations hung thick in the valleys and the skeletons of the trees destroyed in these early decades still bear witness to the losses due to lack of care or foresight in this early era.

But what about grazing? On May 1, 1897, a committee which had been appointed by the National Acad-

emy of Sciences at the request of Secretary of Interior Hoke Smith to investigate and report upon the inauguration of a rational forest policy for the forested lands of the United States, and composed of Prof. Charles S. Sargent of the Arnold Arboretum, author of the standard work on American trees; Prof. William H. Brewer of Yale, a pioneer in agricultural experiment station investigations; Gifford Pinchot, afterwards chief forester of the United States, and four others, made this statement. "Nomadic sheep husbandry has already seriously damaged the mountain forests in those states and territories where it has been largely practiced. In California and western Oregon great bands of sheep are driven in spring into the high Sierras and Cascade ranges. Feeding as they travel from the valleys at the foot of the mountains to the upper Alpine meadows they carry desolation with them. Every blade of grass, the tender growing shoots of shrubs, and seedling trees are eaten to the ground. The feet of these hoofed locusts, crossing and recrossing the faces of steep slopes, tread out the plants sheep do not relish and



OPEN HERDING OF SHEEP ON THE GUNNISON NATIONAL FOREST IN COLORADO

When the National Forests were created, the production of livestock was not one of the objects of their establishment, but instead was regarded as inimical. Stock grazing was prohibited by order of the Secretary and sheep were ejected from the Forests. But—they came back!



loosening the forest floor produce conditions favorable to floods. Their destruction of the undergrowth of the forest and of the sod of the alpine meadows hastens the melting of snow in spring and quickens evaporation. The pasturage of sheep in mountain forests thus increases the floods of early summer which carry away rapidly the water that under natural conditions would not reach the rivers, where it is most needed for irrigation, until late in the season, and by destroying the seedling trees on which the permanency of forest depends, prevents natural reproduction and therefore ultimately destroys the forests themselves."

Continuing, the report states:

"The government in permitting free pasturage of sheep on the public domain to sheep owners in the public land states clearly commits an injustice to persons engaged in this industry in other parts of the country. The pasturage of sheep on the National domain has been so long allowed, however, that the men

of the whole country and not to those of any one section. . . a few sheep owners should not be allowed to exterminate great forests at the expense of the whole country."

Consequent upon this report, the act of June 1, 1897, while opening up the National Forests to lumbering, mining, hunting, water power and recreation made no provision whatever for their use for grazing. The objects of the National Forests as stated in this law are clearly indicated. "No public forest reservation shall be established except to improve and protect the forest within the reservation or for the purpose of securing favorable conditions of water flows and to furnish a continuous supply of timber for the use and necessities of citizens of the United States."

It is evident that when the National Forests were created, the production of livestock was not considered one of the objects of their establishment, but, instead, was regarded as inimical to the very purposes which they were to serve. Stock grazing was prohibited by order of the Secretary of the Interior, and sheep were ejected from the forests.

But they came back! Under enormous pressure, economic, scientific, administrative, and political, the sheep men recaptured their old ranges. Not as in the good old days when they were free to roam at will, the only limit to their expansion being the amount of forage to be had and their ability to beat the other fellow to it, but



#### AS IT SHOULD BE

Reproduction of Western Yellow Pine on an area which had not been grazed by sheep up to the year when the picture was taken. Fire protection is followed by reproduction in the absence of grazing damage.

who benefit by it have come to believe that they have acquired vested rights in the public forests, and their trespass can only be checked by the employment of vigorous measures."

Finally, this committee states:

"It must not be forgotten that the public domain of which these reserves form a part belongs to the people



#### AS IT OFTEN IS

An area adjoining the above, on the same reservation, but which was heavily grazed by sheep. The remnant of the Yellow Pine seedlings, completely defoliated and killed by sheep, are seen in the foreground.



under regulations built up by the United States Forest Service whereby range wars were terminated, migratory bands eliminated and the industry stabilized in the hands of local residents or stockmen well intrenched with land, water and other range accessories of their own. This infiltration into the National Forests was based on many factors, chief of which are that the sheep industry was largely dependent on high summer range for its continued existence in its present form, and the claim that when properly controlled and regulated, sheep grazing was not necessarily a detriment to the forest; hence it should be permitted for the sake of conserving the forage and increasing the national production of mutton and wool.

In the year 1924, there were grazed within the National Forests, 6,301,308 sheep and 29,068 goats, belonging to 5,694 owners, while 1,664,087 cattle found pasturage on these forests, representing 25,286 owners. This represents 30 per cent of the livestock in the Western States. These permits for grazing are rapidly being put on a 10 year basis which will make reductions exceedingly difficult. This entire system has been built up by administrative permission. Since the law did not specifically forbid it, grazing could be allowed provided it did not thwart or jeopardize the fundamental objects of the forest reservations. The secretary's control was absolute and his right to regulate, reduce or prohibit all grazing was twice upheld by the United States Supreme Court.

If sheep and cattle grazing can be permitted, under regulation without endangering the forests, the nation is the gainer. But can they, and to what extent? Evidence goes to show that in spite of the intent of the Forest Service to prevent damage by grazing, this damage has occurred over widespread areas and to an alarming extent. Just how much damage has been done and how widely disseminated it is not possible to say. But one thing is certain—sheep have not changed their habits since their destructive tendencies first led to the recommendation for their total exclusion from these forests, in 1897. The damage may, it is true, be reduced, in proportion to the lessening in the number of sheep permitted on the range. But the important fact is that sheep will eat young pine seedlings more readily than they will the coarse bunch grass which in Arizona and New Mexico especially is the characteristic vegetation in the Western Yellow Pine type. Owing to this fact, which has been proved beyond dispute by nearly twenty years of study at the Southwestern Forest Experiment



#### TYPICAL DAMAGE TO SEEDLINGS BY SHEEP

A tree 2 feet 3 inches tall on the Coconino National Forest defoliated and dying. The greatest damage is done to seedlings before they reach this size. The one and two-year seedlings are often bitten off close to the ground and older ones stripped of all foliage and killed.



#### DWARFED

This sapling, approximately 20 years old, has been dwarfed and distorted by continuous injury from grazing animals.

Station at Flagstaff, Arizona, it is probably impossible to graze sheep at all on such yellow pine ranges without doing some damage to pine seedlings. At any rate, if it is possible so to control grazing that damage can be averted, then grazing has not been properly controlled. In fact, serious

overgrazing has occurred on many of these National Forests, so much so that the forage itself or range has been severely depleted and valuable forage plants have been reduced, giving place to inedible or even injurious species like pingué which forms an indigestible ball in the sheep's stomach, eventually causing its death.

The writer's own observations on this point covered practically every National Forest in the States of Arizona and New Mexico, or a total of 21,000,000 acres, nearly one-fourth of the 88,000,000 acres which are subject to grazing privileges in the National Forests, and extended over a period of two years in 1917-18. Without exception, grazing damage was observed wherever sheep used the range, and in some instances the differences between the absolutely denuded sheep ranges and adjoining fenced pastures or ranges used only by cattle were startling and conclusive. The worst of this damage occurs when the seedlings are small. The sheep bite off and bodily consume many one year

seedlings, and defoliate those of somewhat larger growth. The damage continues until the leader or main shoot attains a height of about three feet, out of reach of the sheep.

Sheep grazing is largely responsible for the failure to secure satisfactory reproduction on 200,000 acres of Western Yellow Pine cutover areas on the Coconino and Tusayan National Forests in Arizona. These areas comprise nearly all the cutover lands on these forests. A continuation of such sheep grazing on other lands as they are cut over could eventually reduce these forests to a prairie covered with the coarse unpalatable and inflammable bunch grass. Information on this damage was published in 1904 by J. B. Leiberger, in 1909 by G. A. Pearson, in 1917 by R. R. Hill and the whole question was summed up in final form by Mr. Pearson in 1923 in Bulletin 1105 of the United States Department of Agriculture. Yet over this entire period the grazing damage continued with increasing severity and attempts to reduce or properly control it were for the most parts sidetracked or postponed by demands for further investigations, rehearings or appeals. At the present date, a reduction of 30 per cent in the number of sheep, admittedly necessary even for the protection of the range itself, has again been postponed until it can be shown by segregation, how much of this damage is due to sheep and how much to cattle.

Grazing damage differs in severity with many factors, but comes down finally to this: Is there forage enough, of kinds other than tree seedlings, which sheep will prefer to forest reproduction, to feed all the sheep placed on the forest areas during the periods they are grazed and every year they continue? It is claimed, and it may be true, that on some of the Forests forage conditions meet this requirement. But it is easily proven that such conditions will not continue for even a year if the control of grazing is taken out of the hands of the Forest Service.

Witness the conditions in the Thunder Mountain region of Idaho while under free and unregulated grazing (*American Forestry*, March, 1919, page 907, Henry S. Graves). "More serious, however, is the injury to the ground surface by the excessive and utterly unregulated grazing of sheep," said Mr. Graves. "Not only is this overgrazing destroying the better grasses, but the soil is being rapidly washed away. Gullies are being cut that already are from one to two feet deep and with every flood are being scoured out to a greater width and depth. Portions of the area are described by forest officers as practically a dust heap." Due to the disastrous effects of this overgrazing, the Thunder Mountain area was placed by Congressional enactment in the National Forests in order that this grazing damage might be stopped by rigid regulation of the industry. Frightened by the prospects of having in the near future to pay for the Forest forage at its true value instead of at low or nominal rates, stockmen have seized upon what they regarded as an opportunity to appeal to public or Congressional sympathy to secure

and consolidate their hold on the National Forest ranges forever, by seeking legislation which will deprive the Secretary of Agriculture of his control and protection of the National Forests against grazing damage. Such damage would under these proposals require the proving of wilful intent in a court of law before it could be abated.

With two-thirds of the entire area of the National Forests exclusive of Alaska already burdened with grazing privileges which have proved very difficult to control even with the present absolute authority of the Secretary, and with inaccessibility to stock as the main reason on the remaining one-third for deterring the extension of grazing over the entire area, it is time that the public were appraised of this situation and informed against accepting any legislation which will rank grazing as a primary objective of our National Forests, much less to permit the grazing interests to control these vast areas by hardening their present privileges into legal rights. Rather than relinquish one jot or tittle of the present control, this should be immensely strengthened until damage from overgrazing ceases to exist no matter what reductions or exclusions may be necessary to accomplish this purpose. If on the other hand, grazing becomes the dominant use of any of these areas now dedicated to timber production and watershed protection, they should cease at once to be designated as National Forests, and should be placed in their true category of national grazing lands or pastures, administered solely for this purpose.

The unreserved public lands comprise 184,726,846 acres. They are under the administration of the Department of the Interior. According to the present Secretary of the Interior, Hubert Work, this vast area is "now being utilized for grazing under sufferance without charge or control by the Federal Government. This gratuitous use of the public domain as an unrestricted range for livestock has resulted in overgrazing. Wide areas have been almost denuded of native grasses."

Grazing has never in the history of time been administered or regulated on the public domain as it has been during the past twenty years on the National Forests. Consequently the value of this range, a very large portion of which is unfit for growth of timber, has steadily diminished as a result of abuse and overgrazing. The range within the National Forests, however, because of the regulation which has been exercised by the Forest Service, has become more valuable and more sought after. Recognizing the destruction which follows unregulated grazing on public lands, Secretary Work in his annual report is recommending legislation to preserve the remaining public domain from ultimate destruction by the grazing industries. It is urgent that this legislation be passed at once, but the failure of one arm of the Government sooner to regulate grazing on true grazing lands must not be the indirect means of subverting the policy for conserving our timber supply on those publicly owned lands pre-eminently suited for timber production.



# White Marvels of the Winter Woods

By WILSON A. BENTLEY

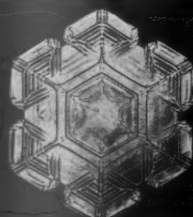
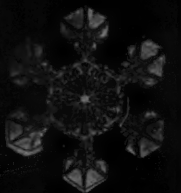
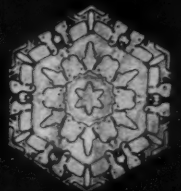
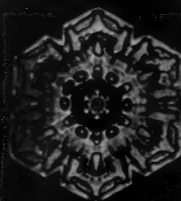
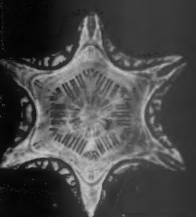
(With illustrations of snow crystals by the author)



THERE is no art comparable to Nature's art, no beauty that can approach the handiwork of Nature. And the marvels of Nature are so manifold, her realm so vast, so full of treasures of beauty and wonder, that often one can find and preempt some little corner as all his own. Mine has been the realm of the snow flakes and water forms. After a heavy moist snow fall, the woods are garbed in beauty. Then is to be seen filigree work,—snow sculpture everywhere. A fairy land bedecked with crystals rare, every tree twig, as Lowell so beautifully says, "rimmed inch deep with pearl." Yet few, perhaps, of those who have been thrilled by the beauty of a snow-covered forest, or mountain, or snow-scape, have fully realized the greater, more delicate beauty of the individual crystals of snow that have transformed the scene. We find in the Bible, in the book of Job, the query, "hast thou entered into the treasures of the snow?" It was the writer's great good fortune, in early youth, to awaken to the beauty of these "treasures of the snow," due, perhaps, to a happy accident,—my mother gave me a microscope. In my search for interesting objects for this magic glass, revealing so much of Nature's hidden wonderland, I soon discovered the thrilling beauty of the snow. And thus began a quest for snow gems, for the "treasures of the snow," that has been carried on for forty-three years, a work that has supplied happiness without measure, and pleasure now shared with me by millions of people the world over.

Snow flakes and most water forms, are among the most evanescent of all Nature's creations. They cannot be preserved like other gems. The most we may do is to preserve their likenesses in drawings, or by photography.

OF INCOMPARABLE BEAUTY AND VARIETY OF FORM ARE THE TINY SCINTILLATING GEMS WE KNOW AS SNOW CRYSTALS, CAUGHT BY THE MAGIC OF THE CAMERA AND MAGNIFIED HERE FROM 10 TO 50 DIAMETERS





I first tried drawing! For three almost futile years, I vainly tried to preserve the dissolving beauty of snow crystals in drawing. Then at my earnest request, my parents furnished an apparatus,—combining microscope and camera, and capable of making magnified images of the delicate crystals. After many heart-breaking trials and failures, success came in my 19th year. I felt an almost reverential love for the seemingly magic apparatus that had made my dream come true. From then on, the coming of a favorable snow storm was an event in my life,—looked forward to, all through the years, with the most intense anticipation and pleasure. The first decade or so of

my work was carried on under great difficulties, for I was hampered by lack of means and pressing farm work. During these early years no photographs were

sold, or articles written about my snow flakes. It was all *out*, and nothing coming in financially. However, nothing could keep me from my own, when really good snow flakes were falling, for all else, work, pleasure, cold, meals, etc., were forgotten or neglected, because of the compelling lure of the marvellous snow gems. My mother always gave me every encouragement, and lived for many happy years to enjoy my hobby with me. Money earned by teaching music, and working for neighboring farmers, etc., helped to pay for photo plates, chemicals, etc. Meanwhile, almost from the first, I became greatly interested in the study and photography of other water forms,—frost, ice, dew, clouds, etc., and I secured many wonderful pictures.

Winters came and passed, always finding me "on duty" when good snow flakes were falling. Winters were found to vary greatly as regards the number of favorable snow falls. Some furnished as few as five; others as many as fifteen. As time went on my collection of photographs became very large, and now it numbers 4,350,—no two alike. Most of the famous snow storms and blizzards occurring during the 40-year period, including the great blizzard of March, 1888, furnished specimens to swell my collection.

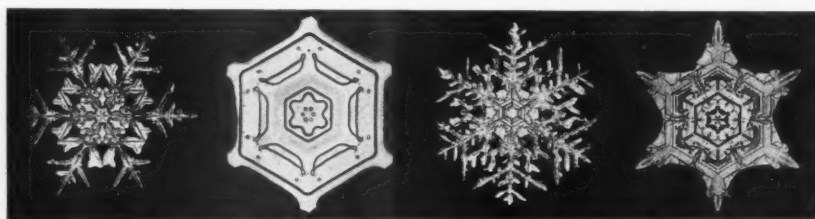
Recognition and appreciation only came after long years, during which time I carried on the work just for the love of it, without hoping for public appreciation. Professor G. H. Perkins, of the University of Vermont, was the first scientist to realize how wonderful the photo-micrographs of snow crystals were, and helped me out with the preparation of the first article written about them. The snow flakes had now come into their own,

for from then on magazines and text books, newspapers, etc., featured them and gave them world-wide fame.

Many uses have been found for them in the arts and sciences. They furnish the basis of design for metal workers, art craft shops, silk manufacturers and jewelers. Classes in drawing and designing, architects for churches and interior decorators, are now using them, and they are also utilized in originating designs for chinaware.

Examine the illustrations, and you will note that the snow flakes (crystals) usually divide into six, and that some have open branching forms, others solid forms,

while others have all gradations between, arranged on a very thin tabular plane. Other varieties occur, including columns, needles, granular forms, etc., but are much less important and



THE RARE LOVELINESS OF THESE "TREASURES OF THE SNOW" HAS BEEN PRESERVED BY THE AUTHOR IN MORE THAN 4000 PHOTO-MICROGRAPHS—EACH DIFFERENT—COVERING A PERIOD OF 40 YEARS OF FASCINATING WORK

beautiful. Further, the first mentioned types possess beautiful and oftentimes complex interiors. Lines, rods, dots, shadings and multitudes of figures arranged symmetrically, give great beauty and richness to the interiors. These lines and shadings are due largely to the fact that the crystals while in cloudland, undergo many changes of form, from open to solid, etc., and as they do so, while branches and other adornments unite one to another—as growth progresses, tiny quantities of air are bridged over and imprisoned within them forming air tubes and air chambers, the edges of which look dark in the photograph. A most amazing thing is that no two of the snow crystals possessing tubular forms, are just alike. This lends a new thrill to the quest for additional photographs, for one never knows, as each new one is caught and examined, what undreamt of marvel of beauty and complexity may be revealed.

Conditions in cloudland are not always favorable to the production of perfect, beautiful specimens. Winds may disturb the arrangement of the water molecules, or crowding may prevent symmetrical growth. Hence it is that, as a rule, only about one snowfall in four furnishes perfect suitable forms.

It is of interest to speculate as to the regions that produce the most perfect snow flakes, and in greatest quantity. The most favorable points lie nearest to the most storm paths. As most storms entering the American Continent, whether in the south, west or northwest, pass out of the continent by way of the St. Lawrence River, it is doubtless true that our locality,—Jericho in northern Vermont,—is one of the most favorable locations on earth for snow photography.



# Bee Heat

## *Some Experiments With Bees That Teach Fuel Economy By Better Insulation of Our Homes*

By HOWARD F. WEISS

WHILE strolling one day over the Campus of the University of Wisconsin watching some gray-haired farmers walking briskly to their classes—"short horns" the young college boys call them—I noticed several electric cables leading from a window into some beehives. I had seen electric lights in chicken coops in California to fool the poor hens into laying more eggs, hence I thought this was another modernistic idea to make the already busy bee still busier so that man could rob him of more honey.

I held my breath (at the age of 8 I was told if one held his breath a bee would not sting you) and approached the hives. All I saw, in one breath, was a lot of bees climbing in and out of their front door. I retreated to take a fresh breath when I noted a sign on the building which read—"Department of Entomology—Bee Culture—Visitors Welcome." I accepted the challenge.

Although I knew more about bees than the summer boarder who said to the farmer's wife as she spied a large jar of honey on the table, "Oh, I see you keep a bee," nevertheless my ignorance of bees rather embarrassed me, so it was with some trepidation that I asked the kindly gentleman who met me at the door,— "Why do you put electric lights in your beehives?"

He smiled,—so I knew I had guessed wrong and said, "I don't, those are thermocouples."

Thermocouples! He was talking a language I understood because I had once studied engineering.

"Oh, you are warming them with electricity." He smiled again, and I felt a sinking spell come over me such as I used to get at examination time.

"No, they warm themselves and I am measuring the heat they generate. Come here and I will show you."

I had heard of "B" batteries and "Bee Lines" but never of "Bee Heat," so I followed. We went into a room all fitted with dry batteries, a maze of copper wires, diagrams, photographs and electric measuring instruments and I then spent an intensely interesting hour listening to Professor Wilson tell me of his bees. Here is what he said.

"Bees, as you know, live in colonies. Their native home is in hollow trees and caves, but domesticated bees are kept in hives. Each colony of bees has a queen, which lays the eggs that propagate the colony. The worker bees gather the honey which feeds the colony during the winter months. Bees have to be kept fairly warm and our experiments show that the best way to keep them warm and healthy is to house them in insulated hives placed out of doors. If kept indoors the bees do not thrive over winter. Now what I am trying to find out is the best way to build beehives. Some of the hives in our experimental apiary are built with double walls, between which we pack fibrous material so that the



HERE ARE THE HIVES IN WHICH PROFESSOR WILSON MEASURED THE "BEE HEAT" AND LEARNED HOW TO MAKE THE WORKERS MORE EFFICIENT BY INSULATING THE WALLS OF THEIR HOMES

heat will not readily pass through the walls. Some of the hives have uninsulated walls.

"Notice that we have placed the thermocouples which, as you know, are simply electric thermometers, in various places in the hives so that we can measure the temperature at different places in the hives.

In winter the bees all cluster around their queen, and the colder it gets outside, the closer they cluster about her. They keep warm by flapping their wings. The bees on the outside of the cluster will flap their wings

pounds of honey last winter, while the colony in Hive No. 2, built with uninsulated walls and having the same number of bees, ate thirty-one pounds. Do you know why?" he asked me.

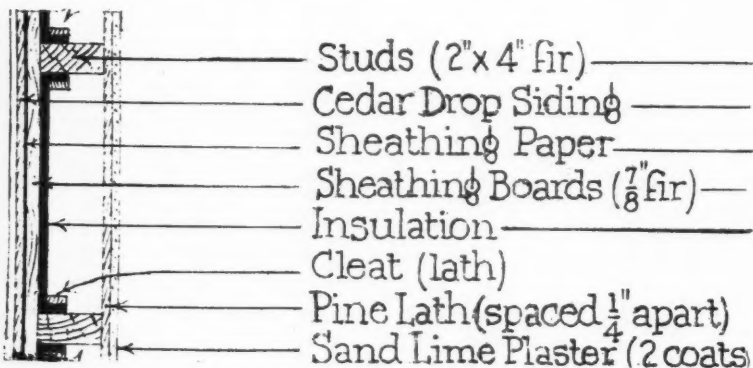
"Sure," I replied, "the bees in the uninsulated hive, have to flap their wings harder and longer to keep their queen and themselves warm, and they have to eat more honey to replace the energy they thus consume."

"Correct," I heard him say, so I felt my studies in thermodynamics had not been entirely in vain.

"Another thing,"—I was learning fast because the professor was talking—"we find that the bees which live in the uninsulated hives are so worn out when spring comes, that they do not produce nearly as much honey as the bees from the insulated hives. So the bee keepers who use uninsulated hives not only lose money in much honey eaten, but the bees come out in the spring much emaciated and decimated and hence they suffer a further loss through a smaller spring gathering of honey."

"What's that picture, Professor?" I asked.

"Oh, that's a colony of bees mov-



THE FRAME WALLS INSULATED AS HERE INDICATED SHOWED A SAVING IN HEAT CONSERVATION OF ALMOST 33 PER CENT

violently and then crawl toward the inside of the cluster to rest. Their places are then taken by their comrades who have been resting in the warmer inner zones of the cluster. So there is a continual movement of 'flappers' so to speak, going in and going out of the cluster. The queen, of course, rests in the center where it is nice and warm.

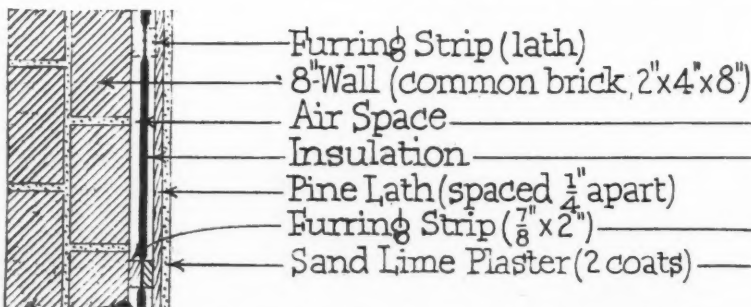
"Look at this chart which shows the temperatures inside and outside of a hive last December. You will note that the temperature outside of the hive was 16 degrees below zero. Now look at the temperature where the queen sat inside the hive. It was 72.4 degrees! On the outer rim of the cluster of bees the temperature was 57 degrees and the coldest place inside the hive, but where there were no bees, because they were all clustered about their queen, was 16 degrees."

"Pretty nice for the queen," I said. "Where does the king sit?"

The professor laughed again, but I felt more at ease by this time.

"There is no king" he said, "nothing but a queen, workers and drones.

"Here is another interesting thing," continued Professor Wilson. "The colony of bees in Hive No. 4 which was built with insulated walls, ate only twelve



BY INSULATING AN 8-INCH BRICK WALL, A 40 PER CENT SAVING IN HEAT WAS EFFECTED

ing," he replied. "When bees decide to move they first send out scouts to hunt up a suitable new location. Then other bees thoroughly clean out the new premises and when all is ready they report back to their queen who flies out of the old hive and the whole colony follows her. They usually alight on some bush or tree near the old hive and sort of talk things over. Then the whole colony rises in the air and lead by the scouts, they fly straight for their new home."

"Is that how we get the expression, 'make a bee line'?" I inquired.

"That's it." I had improved rapidly. I continued my walk toward Lake Mendota and could not help but think how much like bees we humans are. While we don't flap wings to warm our homes, nevertheless when the



THE "QUEEN" OF THE HOUSE, FEELING CHILLY, HAS  
SIGNALLED FOR MORE HEAT

"queen" of the family gets cold, dad, the worker, toddles downstairs and shovels some more coal into the old furnace. While we don't dig into honey to replace our worn out energy, dad digs down into his jeans to pay the coal dealer for the coal that keeps his family and himself warm, and the harder he has to shovel, the harder he has to dig and worry, and, like the bee, the shorter becomes his span of life.

Why shouldn't we profit from Professor Wilson's experiments on bees? Why continue to shovel coal in and money out in order to heat houses that are heat sieves?

To get some first hand information, I built a number of different kinds of wall and roof sections and measured the amount of heat which passed through them. As my heat insulator I used a product called "Balsam-Wool," because Dr. MacMillan had found it so wonderfully efficient on his recent polar expedition, where the temperatures ranged as low as 60 degrees below zero.

An examination of the following table, which is a summary of my tests, shows some very interesting things:

#### HEAT TRANSMISSION THROUGH THE WALLS AND ROOFS OF DWELLING HOUSES

Kind of Wall or Roof	Heat Loss hr. per sq. ft. per 1° F. transmitted through wall or roof.		Saving in Heat Due to Insulation (Per cent)
	Uninsulated	Insulated	
Frame Wall.....	0.267	0.179	32.9
Frame Stucco Wall...	0.410	0.227	44.7
Brick Wall 8" thick...	0.351	0.207	41.0
Brick Veneer Wall (Brick 4" thick)....	0.235	0.161	31.6
Hollow Tile Wall 8" thick .....	0.495	0.250	49.5
Wood Shingle Roof...	0.304	0.190	37.5
Asphalt Shingle Roof..	0.526	0.258	51.9
Slate Shingle Roof....	0.422	0.231	45.3
Copper Shingle Roof..	0.564	0.267	52.7
Zinc Shingle Roof.....	0.482	0.248	48.6

For example, the ordinary frame house built of wood siding, sheathing boards, studs, lath and plaster, is warmer than a house built of 8-inch brick, or hollow tile, or of stucco. By insulating these walls with  $\frac{1}{2}$ -inch of some high-grade heat insulator the amount of heat which is lost through them can be reduced 32 to 49 per cent depending on the type of construction.

The American public pays over \$1,000,000,000 a year for fuel just to keep itself warm. Over \$300,000,000 of this is wasted annually because we have failed to build warm homes. Why continue this practice of needlessly adding to our already too high cost of living and uselessly burn up our money and energy? Why not be "queens" ourselves and sit comfortably surrounded by an economically constructed home with heat resisting walls and roofs?



DAD, THE "WORKER," RESPONDING TO THE "QUEEN'S" SIGNAL FOR MORE  
HEAT. OVER 30 PER CENT OF THE COAL HE SHOVELS INTO HIS FURNACE  
CAN BE SAVED BY PROPERLY INSULATING HIS HOME





Contributed by Mr. W. A. Ireland

### A CURE FOR THAT "BOARDING-HOUSE REACH"

When The American Forestry Association asked Mr. Ireland, famous cartoonist of the Columbus "Dispatch," for the help of his pen in bringing home to the American people their need of more National Forests in the East, his response was prompt and powerful, as the above cartoon shows.

The McNary-Woodruff pudding, as Mr. Ireland so well portrays legislation now pending in Congress, will help solve the forest problem in the east and relieve a growing national malady—"that long eastern reach" toward our last great timber reserve in the Far West. Seventy-five per cent of our remaining timber, it must be remembered, lies west of the Great Plains, while eighty per cent of our people live east of the Mississippi River.

Mr. Ireland's cartoon is a telling contribution to the effort of The American Forestry Association to secure during the present session of Congress the passage of the McNary-Woodruff Bill which will make possible more National Forests in the eastern half of the United States.



# How the Forest Trees Prune Themselves....

By  
Mabel H. Wharton

**P**ERHAPS, children, in your walks in the forests you have seen an ancient pine tree with long, straight-boled trunk perfectly branchless until high in the air the branches shoot out and form a green crown. Did you ever stop to think how this came to be? Why is it that this special pine is not like the forest of young pines at its feet, which are of the same variety, and which are well branched from ground to apex. This is just another example of the wonderful way Mother Nature has of making things work together for the best good of all. She causes the forests to prune themselves, thus giving us long, straight, free trunks, containing good board lumber with which to build our mills, our houses and our ships.

When this pine was young, as young as the saplings at its feet, it, too, was many branched from root to tip, but growing around it, pressing closely together were many other pines of the same age and height. As they grew larger and larger they became crowded and, needing more room, they chafed against each other. Their branches grew thickly, and the upper branches shaded those beneath until they could not get the light, and so became yellow and sickly. Now a tree needs light and air as much as it needs the moisture and plant food which it draws up from the ground. It breathes through its leaves as we breathe through our pores, and to do this must have light and air in great abundance. When it finds that the sickly yellowed leaves are unable to digest the sap and get the most good from it, it does not care to bother with them any longer, but pumps the sap directly past these places, and on up to the topmost branches which are thrust up into the

air and sunshine, and which drink the precious sap, and grow quickly upward and outward.

The shadowed branches with their useless burden of yellowed leaves stop growing from day to day, and become more and more shadowed. Finally they cease to grow at all, the moisture becomes parched within them, and they shrivel and die.

Now, when the branch dies, the tree has no more use for it, and wishes to get rid of it as quickly as possible. When it is

putting on its layer of new wood each year it does not put it on the dead branch, but works around it so that the branch seems to be set in a little hole, with the bark ruffling around it like a collar. Each year a new layer is added in this manner, and each layer squeezes in upon the branch more tightly until finally it squeezes so hard that the dead branch falls off completely. Then the tree closes the hole up

gradually with bark, and soon the branch is entirely forgotten, and no trace of it remains.

So it was with this one ancient pine. It was a sturdy tree and it grew upward very rapidly, and soon overtopped its brother trees. Year after year the branches which grew beneath in the shade fell from it, leaving its trunk tall and straight and unscarred, until it stood forth in all its majesty, with its green, tufted head in the clouds. Thus Nature has worked out her own wonderful method of pruning and relentlessly, year by year, she goes through the forest doing work that man, had he many many lifetimes to live, could never find the time to do.



# The American Forestry Association Century with Rousing

**T**HE Annual Meeting of the American Forestry Association, held at Richmond, Virginia, January 6 and 7, marked the entrance of the Association upon the second half century of its activity. Assembling in joint session with the Southern Forestry Congress, the meeting was both national and regional in scope, its program treating problems of nation-wide significance as well as those relating directly to specific regions and states.

No meeting of the Association was ever attended by greater enthusiasm and more buoyant optimism for the future. With greater spirit than ever before, those attending the meeting showed a disposition to regard whatever forestry reversals the year may have brought and whatever storms may menace the conservation horizon as a challenge and an incentive to further effort and greater accomplishment. It would be difficult to fix upon any subject that was stressed more than another. Nevertheless, forestry education in the sense of bringing forestry before the public, young and old, was referred to more frequently and probably brought forth more discussion. The increased interest in this subject is not surprising, in view of the growing tendency to regard all conservation progress as a child of education and public sentiment.

The meeting opened at 10 A. M. in the auditorium of the Jefferson Hotel.

*Optimism and Fighting Spirit at Enthusiastic Gathering of The Association and Southern Forestry Congress. Forests in the East Urged. Public South's Great Need. Progress of Most Encouraging Sign of the Federal, State and Industrial In Constructive Meeting in History.*

Hon. Lee Trinkle, Governor of Virginia, address in which his interest in forestry was his proposed budget for Virginia he has asked for forestry purposes. The Governor he had devoted more space to forestry than for forest protection and regeneration are



AT NOON THE FIRST DAY, DELEGATES ATTENDING THE JOINT MEETING OF THE AMERICAN FORESTRY ASSOCIATION AND THE SOUTHERN FORESTRY CONGRESS WERE WAITING IN THE AUDITORIUM OF THE JEFFERSON HOTEL WHERE A PHOTOGRAPHER WAS WAITING. IN THE CENTER OF THE PICTURE, LOWER ROW, READING FROM LEFT TO RIGHT: GEORGE D. PRATT, COMMISSIONER, BOY SCOUTS OF AMERICA; H. L. TILGHMAN, PRESIDENT, SOUTHERN FORESTRY CONGRESS; OVID M. BUTLER, EXECUTIVE SECRETARY OF THE AMERICAN FORESTRY ASSOCIATION.

# Association Begins New Half ing Meeting at Richmond

*g Spirit of Accomplishment Prevails  
ng of The American Forestry Asso-  
Forestry Congress. More National  
ed. Public Education Is Stressed as  
gress of Private Forestry Held to be  
n of the Day. Closer Cooperation by  
ustrial Interests Sure to Follow Most  
in History of Two Organizations.*

of Virginia, welcomed the delegates with a brief  
forestry was attested by his declaration that in  
ia he has increased by fifty per cent the funds  
The Governor added that in his annual message  
forestry than to any other subject. "Expenditures  
eration are the part of wisdom," said the Gov-

ernor. "As a boy in the mountains of Virginia, I watched forest fires miles in extent burning and destroying this valuable form of property. But the people of Virginia and the lumbermen of the State are awakening to the fact that a dollar spent in protecting our forests today means \$10 returned tomorrow." At the conclusion of his address the Governor paid a warm tribute to the zealous efforts and noteworthy accomplishment of Chapin Jones, State Forester of Virginia.

George D. Pratt, president of the American Forestry Association, responded: "It seems most appropriate to me," said Mr. Pratt, "that we should meet on this occasion here in the South, clasping hands, so to speak, with the Southern Forestry Congress and gathering inspiration from its youthful and vigorous career. Young though it is, this Congress has already well planted the seeds of progressive forestry throughout the South. Speaking for the members of my own Association, therefore, we appreciate this opportunity to meet with you, and I express the hope that one of the lasting results of this meeting will be combined effort, based upon common understanding, common objectives and an earnest spirit of friendly cooperation. That is the bone and marrow of progressive forestry.



ATION AND THE SOUTHERN FORESTRY CONGRESS AT RICHMOND, GATHERED AT THE FRANKLIN STREET ENTRANCE OF THE JEF-  
EADING FROM LEFT TO RIGHT, MAY BE SEEN DANIEL CARTER BEARD (WITH STETSON HAT IN HAND). NATIONAL SCOUT COM-  
GEORGE D. PRATT, PRESIDENT, THE AMERICAN FORESTRY ASSOCIATION; MRS. FRANCIS C. WHITLEY, CHAIRMAN, FORESTRY COM-  
ICAN FORESTRY ASSOCIATION; AND WILLIAM D. TYLER, CHAIRMAN, EXECUTIVE COMMITTEE, SOUTHERN FORESTRY CONGRESS



"The year just closed has been one of more than ordinary conservation effort. It has brought us to a definite line of battle. On the one hand we are flouted by an insidious attack upon our greatest conservation accomplishment. I refer to the National Forests of the West, and the well-laid plans of certain powerful stockmen to break up these great forests into grazing units and to give, by special legislation, a small group of individuals grazing privileges that would make forestry and water protection on these public forests a joke and a sham.

"There must be no complacency, no giving ground to any legislation that will impair the freedom of the Secretary of Agriculture to manage these forests, first and last, as forest growing properties.

"The American Forestry Association has thrown its full strength into this controversy. It has sought to warn and inform the public whose property is at stake. It is calling upon every public spirited organization throughout the country to throw its influence in behalf of the people's forests.

"The other great threat to progressive forestry, which the past year seems clearly to have defined, is the threat of false economy on the part of the Federal Government in dealing with our forest situation. We have boasted much of the Clarke-McNary Act, but the value of a law must be measured by the good it accomplishes. I do not criticize the Clarke-McNary Act as a law, but I am concerned at the failure to make it operative. It is based on the principles that the Federal Government will, through cooperation, do its part in helping to reduce forest fires, promote reforestation and increase the area of publicly owned forests in Eastern States, if the State and local governments and private owners will, in turn, do their part.

"Although passed two years ago, we must now frankly admit that we have failed to get the Clarke-McNary prescription properly filled. It called for an appropriation for cooperative fire protection of not to exceed \$2,500,000. Last year the sum actually appropriated under this item was \$660,000. With the conviction that the amount did not meet the Federal Government's share of broad cooperative needs, effort was made last fall by some twenty national organizations, under the leadership of The American Forestry Association, to have the budget for the new year carry a fire protective item of \$1,500,000, at least. Our efforts were unavailing, for the new budget grants not one penny of increase to permit the Federal Government to meet its larger obligations in saving our forests from fire. Such a course of action brings home the conviction that the Budget Bureau's policy of economy, as applied to forestry, is a policy of deferred expenditure at Washington without regard to tremendous current losses in our outlying forests. Such a policy, I believe, is inconsistent with the President's recent statement that:

"All proposals for assuming new obligations ought to be postponed, unless they are reproductive capital

investments or are such as are absolutely necessary at this time.'

"Turning now to private endeavors in forestry, we may indulge in a more optimistic view. Here significant progress is being made. In all regions of the country, the necessity of timber growing as sound industrial practice is more and more occupying the attention of forest owners, large and small. In increasing numbers they are adopting some form of forest management looking to permanent utilization of their lands and protection of their growing timber from fire.

"It is unnecessary to dwell upon the rapid retreat of our southern forests and the equally rapid march of idle acres, claiming forest growing land like an army of 'Red squatters.' The task before the South and the nation is to evict these idle acres by the strong arm of public sentiment. What private individuals are doing, what the states and the federal government are doing in reforestation must have back of it, if their efforts are fully to mature, public understanding and cooperation.

"The remedies, as all know only too well, lie with the people. Our plans and our hopes here will be unfulfilled unless we return to our homes and our work determined to redouble our efforts of popular education in forestry. The greatest bar to forest progress today, I believe, is popular ignorance of forest protection and reforestation. It is nowhere better illustrated than by the yearly record of fire burning throughout the South. Real progress demands a far greater campaign of public education if national interests represented by timber supply, home-building, industrial permanency, water and soil protection, wild life, propagation and recreational development are to be adequately and permanently provided for."

Taking as his subject "The Field of The Southern Forestry Congress," H. S. Tilghman, president of the Southern Forestry Congress, reviewed briefly the history and accomplishments of that organization since its beginning in 1916. He touched on the fact that the number of Southern States possessing forestry legislation has increased and predicted ever widening interest and activity in forestry. "When the people of the South," Mr. Tilghman said, "are brought to a realization of the enormous economic loss from forest fires, that with intelligent care they can probably grow one half of the timber which can be grown in the United States, and, that forest products are needed more and more in the South for its own development, then will we begin aggressively to attack the problem. The South has been slow in developing but the past few years have brought marvelous changes and I believe we are only beginning this period of development and that the next few years will bring us undreamed-of progress. This development will be diversified and to complete the circle we will have real need for all the forest products we can grow and conserve on the neglected acres of idle land."

William L. Hall, of Arkansas, spoke on "Forestry in the Development of the South," emphasizing the ex-



tensive areas of timberland interspersed through a region teeming with industries and in the surge of present development on a vast scale. "Today," said Mr. Hall, "a very substantial percentage of southern pine timber is coming from second growth forests. That crop came by chance. It is nature's gift to us in spite of heedlessness, neglect and blind disregard of possibilities. The percentage of lumber coming from this class of timber increases every year. Before another twenty-five-year period passes it will furnish the entire output of southern lumber. The current has set very strongly towards increasing production from this class of timber. In actual fact it is not over emphasis to say that during the past year second growth forests in the south have moved to the center of the stage."

Addresses during the morning session were made by E. F. Allison, of the Allison Lumber Company on "Forestry and the Lumber Industry," and by J. C. Williams, Manager, Development Service, Southern Railway System, on "What Forestry Means to the Railroads."

The afternoon session was devoted to the subject "National Forests." Philip W. Ayres, Forester of the Society for the Protection of New Hampshire Forests, discussed

"The Growth of Our National Forests in the Eastern States." Col. Joseph Hyde Pratt, of North Carolina, spoke on "National Forests in the Economic Life of the South." A. B. Brooks, Chief Game Protector of West Virginia speaking on "National Forests and Game Resources," appropriately stressed the fact that the forest is more than a piece of ground growing trees. "It is a complicated composite of plant and animal life," said Mr. Brooks, "a living, breathing organism, pliable and adaptable to the needs and varying interpretations of all."

"We can truthfully say that the National Forests, stretching from coast to coast, and interlocked with the system of state forests and game refuges, will constitute, in future years, the great and permanent reservoirs of game and other useful wild life, and will be the controlling influence in perpetuating our most valuable species."

Arthur Ringland, Executive Secretary, National Conference on Outdoor Recreation, developed the subject "Recreation and The National Forests." Col. William B. Greeley, Chief of the U. S. Forest Service, painted in his clear, direct way, a bright picture of the future of forestry in the South, saying, "the Southern States, in my judgment, will become the greatest forest-producing region of the entire Union." Touching on the policy of the Federal Government in acquiring forest lands

in the Southern States, Colonel Greeley said:

"No policy of Federal land ownership should be spread on the map that will in any wise hold back or slow up the application of private capital and business brains to the industry of growing timber. Let us rather adhere to the simple principle upon which the Clarke-McNary law was written, of extending public forest ownership where special public responsibilities must be met or where natural difficulties or hazards place timber growing beyond the reach of private effort; and its corollary, to lessen the risks and handicaps of industrial forestry so that commercial timber growing may attain the greatest possible momentum. To this principle we might add the desirability of establishing National Forests on rather limited areas in regions where they will render an important educational service in demonstrating the new order of forest land management and stimulating the reforestation of the privately owned lands around them. State and municipal forests will accomplish exactly the same purpose; and wherever their establishment is practicable the Federal Government should leave this field to them. This principle does give a definite place in the forest pic-

ture of the South to Federal ownership; although in relation to the vast areas of forest land in this great region its place will be a small one.

"The extension of National Forests in the South, along the principles already established, should go on. Approximately 43 per cent of the purchase units thus far selected for the protection of important navigable streams has been required. These National Forests should be completed.

"The Federal Government should also move aggressively under the Clarke-McNary Act in acquiring additional National Forests in the South, where they will be of the greatest aid in reclaiming lands now denuded and in promoting local reforestation through their educational, or demonstration, value. \* \* \* \*

"The States and municipalities should share with the National Government in providing public ownership for the kinds of forest land that need it. But for every acre of publicly owned forest land there will be 20 or 25 acres in farm forestry and industrial forestry, in whose encouragement lies the greatest opportunity for the South to forge ahead rapidly in permanent timber production on a large scale."

The annual banquet was held at 7.15 in the evening. Appropriately decorated with long leaf pine, the special dining room of the Jefferson Hotel was filled to over-



GEORGE D. PRATT  
Re-elected President of the American Forestry Association.

flowing. Small cross-sections of loblolly pine served as souvenirs. Daniel Carter Beard, National Boy Scout Commissioner, and better known to millions of American boys as "Dan Beard" was the first speaker of the evening. Perhaps no one in the world loves the outdoors more fervently and understands its myriad moods and conditions more intimately than Dan Beard. "We are making a desert of the United States," he said. "I have kicked the dust from places where years ago I caught pound and a half trout. The only way to stop this devastation is to teach the youth of the country the value of trees. We teach the scout to love the trees. We teach him how they grow and the purposes they serve."

George F. Authier, author and journalist, of Washington, D. C., followed Mr. Beard. Mrs. Frances E. Whitley, Chairman of the Forestry Committee, General Federation of Women's Clubs, spoke on "The Women's Contribution to Forestry." Mrs. Whitley said, in part:

"We are urging that in every school the duty of preserving natural beauty and protecting the forests from fire be made a part of the training in good citizenship and I believe that if this subject could be presented in its real, its impressive significance to our State Teachers' Association, our Women's Federation, etc., it would not be difficult to get to the children the thought of the individual responsibility of every citizen to guard the forests and the children would take it into homes where their parents never hear or read what you and I say."

The inseparable relation of forests to the sport of hunting and fishing was ably demonstrated in an address by Col. H. L. Opie, Sportsman and Editor, Staunton, Virginia.

The morning session of the second day was devoted to "Reforestation." The speakers at this session were Major Wade H. Philips, Director North Carolina Department of Conservation and Development, on "New Forests for North Carolina"; E. H. Frothingham, Director Appalachian Forest Experiment Station, "The Regeneration of Appalachian Hardwoods"; R. D. Forbes, Director Southern Forest Experiment Station, "Diameter Limit Cut in Southern Pine"; J. W. Watzek, Jr., Vice-President Crossett Lumber Company, "Reforestation and the Lumber Industry"; R. M. Evans, United States Forest Service, "Forestry as Practiced in Eastern National Forests."

At 11 A. M. the business section of the Southern Forestry Congress was held at which the election of the following officers was announced: President, H. L. Kayton, Savannah, Georgia; Vice-President, R. B. Robertson, Champion Fibre Company; Secretary, E. O. Siecke, State Forester of Texas; Assistant Secretary, William L'E. Barnett, President Florida Forestry Association; Chairman Executive Committee, William D. Tyler, Dante, Virginia.

The afternoon session was devoted to State Forestry in the South. Addresses were made by William L. Bazeley, Conservation Commissioner of Massachusetts; C. P. Wilbur, State Forester of New Jersey, and Chapin Jones, State Forester of Virginia. There followed a general discussion in which all state foresters present participated.

In strong resolutions both organizations placed themselves definitely on record as emphatically opposed to the grazing legislation proposed by western stockmen or to any other legislation seeking to take from the Secretary of Agriculture authority to regulate grazing on the National Forests. Other resolutions included: an expression of regret and loss to forestry occasioned by the death of Bolling Arthur Johnson and Rose Shumate Johnson of the *Lumber World Review*, and of Filibert Roth, teacher, scholar and leader; endorsement of the plans of the National Academy of Sciences for a world wide survey of forest resources, and the educational campaign of The American Forestry Association to inform the people of the country of the need of forest fire prevention. The effort of the "Save the Redwoods League" to acquire representative tracts of coast redwoods was recommended and passage of pending legislation designed to establish a national arboretum near Washington, D. C., was urged, as was the adoption of the McNary-Woodruff Bill. The meeting went on record as favoring increases in the sums recommended by the Budget Commissioner for the acquisition of forest lands from \$1,000,000 to \$3,000,000; and for co-operation with the states in the prevention and suppression of forest fires from \$660,000 to \$1,500,000.

The administration of the United States Forest Service under the direction of Col. William B. Greeley received the hearty and unqualified endorsement of the joint meeting.

### PRIZES OFFERED FOR PICTURES OF LIVING CHRISTMAS TREES

In order to learn to some extent the number of living community Christmas trees which are being used in the United States, and to encourage the planting of more evergreen trees to be illuminated at the Yuletide festival, Mrs. W. I. Higgins, of Butte, Montana, announces an offer of \$10.00 for the best photograph of a growing community Christmas tree. A description of the tree when in its Christmas garb must accompany the photograph, if a picture of the lighted tree is not satisfactory. A prize of \$10.00 is also offered for the best photograph of a living home Christmas tree, decorated similar to the one described in an article entitled "A Living Tree That Tells the Christmas Story," published in the December, 1923, number of *AMERICAN FORESTS AND FOREST LIFE*. Copies of this magazine may be found on file in libraries.

All pictures must be accompanied with a description of the tree, and the name and address of the person sending it plainly written on the back of the photograph. Pictures will not be returned, but will be used to accompany articles on community Christmas trees for club programs unless owner encloses postage and desires return of picture. Send photographs to Mrs. W. I. Higgins, 3014 Sheridan Avenue, Butte, Montana, before February 1st, 1927.



# The Ganado Petrified Forest

By ALBERT B. REAGAN

**M**ANY people touring America or studying the tourist guide books are led to believe that the United States boasts but one petrified forest—"The Petrified Forest National Monument" near Adamana, Arizona. But there are others. Apache County, Arizona, alone contains several as extensive as the one so nationally advertised. Among them are the petrified forests at Round Rock, at Beautiful Valley, and at Ganado, all about the same age geologically, of the Shinarump-Chinle period of Middle Triassic age—probably a billion years old.

The "forest turned to stone" near Ganado, covers about a square mile, with scattered logs and chips exposed here and there over a much larger area.

A number of whole length logs are exposed three to five feet in diameter with an average length of over fifty feet. In addition hundreds of smaller dimensions are to be found. The floors of the short canyons, cutting back into the formation, are lit-

erally paved with chips and blocks of petrified wood. At no place is a whole tree shown or any limbs, excepting one small fragment less than a foot in length. One

stump with roots attached was seen, and one tree with upturned roots.

Most of the trees are composed wholly of silica in the form of chalcedony and jasper. Some of the logs are gray like the sandstone that incloses them. Others are colored by manganese and iron and often assume beautiful tones of red, blue, brown and yellow, and vari-colored shades.

The general supposition seems to be that in the far distant past, a giant forest flourished here, similar to the other petrified forests of the West, which some great catastrophe mowed down. In the re-shaping of the earth's crust, an inland lake or sea was formed above this sunk-

en forest or the logs were dumped into it by turbulent streams. Seepage from springs of salt, sulphur and other mineral content penetrated the fiber of the wood

## METAMORPHOSIS

Can one believe this forest lying prone,  
Where no bird sings, no leaf stirs in the breeze,  
Was once alive—these fallen trunks of stone  
A fragrant woodland of green, growing trees?

What mystery of nature is concealed  
In this vast bed of a forgotten sea?  
What petrified, what veins of sap congealed,  
What struck to living death each vibrant tree?

Tumbled together on the slopes they lie,  
Transcendant in their beauty—spruce and pine  
Transformed, transfixed, with every rainbow dye  
Imprisoned in them—like a jeweled mine.

Strange land of olden times, where canyons deep  
And weird, perverted woods like this are found;  
Where painted desert vies with purpled steep  
And carven, grotesque things in rock abound.

Sphinx-like in silence—harking back when time  
Was in its youth—we can but gape and stand  
Awestruck amid the marvels which, sublime,  
Make panoramic scenes on every hand.

—Maude Wood Henry.



and the prolonged period of saturation gradually turned the wood to stone.

At length another age was ushered in. A great upheaval, extending over a long period of time raised the region to more than a mile above sea level. Then, throughout another very long period of time, denuding agencies cut the table country down. In this way the buried, forgotten forest has been brought to the surface again under the Arizona sun.

The abundance of fossil wood in the whole region both north and south of the Colorado river is almost incredible, and its presence has made a profound impression on the native tribes. To the Navajo the logs are

"yietsobitsin," the bones of Yietso, a monster who was destroyed by the sun and whose blood was congealed in lava flows. In the Piute mythology the broken trunks are the spent weapons of Shinarav, the great Wolf God; the accumulated masses mark the sites of battle fields.

The fossil wood, scattered over the whole Shinarump-Chinle outcrop, undoubtedly represent several species. The species in the valley of Lithodendron wash to the south of the region here described are *Araucarioxylon arizonicum* and *Woodworthia arizonica*. The writer suggests that this forest near Ganado be called the "Ganado Petrified Forest."

## Living Trees Carry Green Christmas Greetings

**M**R. ARTHUR L. LEE, Manager of the McAlpin Hotel in New York, and well known in the hotel world, conceived the idea of distributing to the guests of the hotel on Christmas morning individual, living trees to carry his Christmas greeting. And so 5,000 little trees, which were

grown on the grounds of "Idle Wood House," in the Adirondacks, which is owned by Mr. Lee, were sent down to New York and festively decorated, as shown in the picture. A small tag was attached to each bearing the words "PLANT ME AND I'LL GROW. PUT ME BY THE ROADSIDE AND HELP REFOREST AMERICA." He who runs may read that Mr. Lee not only accomplished in this way a delightful and unique form of greeting, but his friendly thought will undoubtedly do much to inspire hundreds of people to plant little trees like these and, more important still, to care for them after they are planted. The American Forestry Association heartily commends his effort.



*International Newreel Photo.*

MR. LEE AND HIS DAUGHTER LOLA, PREPARING THE TREES FOR PRESENTATION





# SAPLING SAM'S SCRAP BOOK

## WOOD OWNERS!

Translation from three fire posters published by The Bureau He'de Maatschappij at Arnheim, Holland. (Netherlands Heather Society.)

Traveler, take care, it has truly been said  
That a match cannot think, though it does have a head.  
So you who in dry times, the forest have sought,  
To the danger of fire must doubly give thought.

When you walk in the woods  
In search of enjoyment,  
Your pipe should be wearing a lid like a hat,  
Lest the fighting of fire should  
Become your employment  
Because hot tobacco blows this way and that.

A cigarette, carelessly tossed by the path,  
Will set the dry grass into flashes,  
And the pleasant green woods and its owner as well  
Will be driven to sack cloth and ashes.

## The Ghost of the Dewey Mine

Blackie Wallace is a Ranger on the Thunder Mountain section of the Idaho Forest. He has his headquarters at the building of the old Dewey Mine; a log cabin built on a side hill, with a large cellar on the same level in the rear of the cabin, dug into the hillside. The whole place is thickly inhabited with pack rats, mice, and bats, so that the nights are indeed spooky under any circumstances. One night Ranger Wallace heard a greater commotion than usual and decided that probably two pack rats were having a fight to the death. This was too much for him, and he determined to quell the disturbance. Going to the door of the cellar, he flung it open and was confronted by the ghostly head of a mule only a few inches from his own. Action was quicker than thought, and Wallace finding no door handy, shot out of the window, closely followed by the ghostly mule. He later discovered that the mule was his own. Grazing on the hillside behind the cabin, the cellar roof had given away. The mule fell into the cellar on its face, the floor being covered with water and thin mud, thus giving it a savage and ghostly expression which would be enough to scare anybody expecting to find a pack rat.



## All Is Vanity

A California hunter who wore a feather in his cap was shot at in mistake for a pheasant. He lost the top of one ear and all interest in millinery.—*Vancouver Province.*

## Anyway, They're Interested

Gathered from essays on forestry and fire prevention submitted by children in an essay competition conducted by the British Columbia Forestry Service.

If the forest is burned up the country looks as if there was a fire there for about two months.

Tourists come from all over the world to shoot grizzly bear, deer, etc. This keeps our railroads going.

There was one tree as wide as when a man stood up he couldn't reach the top.

Very long ago the lumber on the prairies was so thick that they thought they could never use it up and now they let the fire roam all over.

## A Hard Worker

Pa Trolman says: "Got my pump set up right at the fire—when I finally got her goin', the fire had left. 'Sall right anyhow, there w'ant no water around.'—*The Forest Patrolman.*

## Gems from Forester's Grazing Reports

"The livestock losses on the range this summer have been very gratifying."

"Under heading 'Disposition of Carcass'—I suppose this means 'kind,—friendly, irascible or cranky.'"

## Ain't Nature Grand?

I love old New Haven, her streets  
are so clean,  
And so when I sit on her fine central  
green  
And eat ripe bananas and peanuts,  
I'm neat,  
I pile all the skins and the shells  
'round my feet;

'Tis pleasant to know that the city will pay  
An army of men to clean up the next day.

P. E. B.—In "*Parks & Recreations.*"

The fine central green may submit to your pranks  
And the city clean up and dispense with your thanks;  
But when in the woods you have cut your initials,  
Don't muse on the patience of public officials  
Or figure on leaving your campfire or smudge,  
'Tis unpleasant next day to report to the judge.

Sapling Sam invites contributions to his column. Address him in care of The American Forestry Association, 1523 L Street N. W., Washington, D. C.

# Have the Stockmen Changed Their Brands?

Mr. F. J. Hagenbarth, of Spencer, Idaho, is a large and influential stockman of the West. He is President of the Woods Livestock Company, reputed to be the largest sheep raising organization in the United States. This company, we understand, holds permits to graze more sheep on the National Forests than any other single owner. Mr. Hagenbarth, its President, is also President of the National Wool Growers' Association.

When the Special Investigating Committee, of the Senate Public Lands Committee, held a hearing in Salt Lake last August, Mr. Hagenbarth appeared before it. According to his own statement he was "delegated by the joint conference of the National Wool Growers' Association and the American Livestock Association, in company with Mr. Fred F. Bixby, to appear before this sub-committee and present the findings of our conference." The conference referred to was one held the day preceding, and was attended by about two hundred western stockmen, who claimed to represent the two organizations mentioned by Mr. Hagenbarth. It was at this conference that the radical demands of the western stockmen, directed at the administration of the National Forests, were framed. Mr. Hagenbarth's presentation to the Senate Committee of the stockmen's demands was in vigorous language.

## *Mr. Hagenbarth, the Radical*

Here are some of the statements made by him, as extracted from the official report of the hearing:

"So that, Mr. Chairman and gentlemen of the Senate committee, you have assurance that in no sense is this report which is to be presented to you the result of anything other than actual representation, made in as fair and equitable a manner as could be devised on the part of the livestock interests, both cattle and sheep, that it is not a padded or steam-roller representation in any sense of the word. It does not represent the opinion of any one group of men, but is the united, and I am happy to say practically unanimous, opinion of all the States as represented by the cattle and sheep men present at this conference. . . .

"Now, Mr. Chairman and members of the Senate committee, at this late day, we are asking, in the first provision of our report on National Forests, that there be made by law a definition, a protection, of the right to grazing upon the National Forest ranges upon an area basis. . . .

"Now, gentlemen of the committee, if this matter is put on an area basis, and a man is given a certain area, in event that his methods are destructive in use of the Forest, he will have his sins of omission or commission visited upon himself.

"But on the other hand, if there be a permittee on the Forest under an area basis, who increases the grazing value of that area, then that inures to his benefit. There is an incentive. . . .

"We have given to the settlers their homesteads—oftentimes lands worth thousands of dollars. We have given to the mining man the rights to the minerals in the hills and to the gold in the valleys. And all the way down through our history we have practiced that principle of discovery and priority. And we contend that any man who was a pioneer in this country, and who went out on those forests and established priority of use, and who has, under that great rule of American pioneering which I have described, created a valid although not a legal right, perhaps—has not in this case—should not be deprived of that. We are asking that that be made a legal right and placed in the same category as is mining and water and the other resources that can be acquired by priority of use and beneficial application. . . .

"This is a fundamental principle, as I have stated, that we are trying to establish. And we are not mealy-mouthed, Mr. Chairman and members of this committee, about this matter. We contend against the socialistic principle that any man can step in and divide this thing up. By the right of discovery and priority of use we absolutely claim it as ours. And we are not a bit thin-skinned about so stating. The men who

pioneered this great West are as much entitled to it as the men that pioneered the western reserve of Ohio and now have those fine farms there that were given to them at the beginning. . . .

"And therefore we are asking that these leases, or areas, or permits, or uses, or whatever technical term they may be given, shall be definite and transferable as near a right in fee simple as it is possible to have without having a fee-simple right. . . .

"The fourth recommendation, you will note, is:

"That the holders of such rights shall be responsible for willful damage done by them to resources of the Forest."

"I do not think that needs any explanation. It speaks for itself. The livestock men have gone on record here to place themselves on their good behavior and protect the other resources of the Forest from any willful damage on their part, and that if they do they shall be responsible therefor. . . .

"Why, how ridiculous it is that when the cattlemen in this country, the grandest set of men that God ever made, men that have grown gray-headed on these ranches built up in the West, were being absolutely wiped out and destroyed in their business, and the sheepmen mighty near it, but they had a stroke of good luck and are coming up somewhat—in the face of this condition, on a theoretical, bureaucratic proposition, Mr. Chairman and members of this committee, and that pointed the danger to us, this autocratic, bureaucratic institution in Washington had the supreme presumption and lack of vision and foresight to propose that these poverty-stricken cattlemen should be assessed still further for the privilege of grazing on a Forest, the forage of which belongs and should belong to the people of these Western States, without charge. . . .

"Now as a matter of pure equity—and you will notice that we have not contended for that—there are many, many reasons why there should be no charge, no fee whatever to the livestock man except in so far as the State is concerned. We are keen to upbuild these States, and we feel that the resources as far as possible through us should be given to the States. But inasmuch as Congress up to date has not seen fit to give to the great States these lands, the public domain, or the fruits of their exploitation or development, we feel that what fees are derived from the Forests should go to the State in order to reduce taxation, in order to bring about a cheaper and more economical production of livestock and clothing for the people. . . .

"But we are simply asking here that the fee paid under section 6 by the livestock men, first, shall not be high enough to prove detrimental and destroy the values in the properties which they own; secondly, that whatever fees are paid shall

go to the States in which the Forests are located. We do not pretend to set fees here, but we do say that the fees shall not be high enough to affect and destroy the values in this land and the working ability of the cattleman or the sheepman who is producing stock, which is saying the same thing."

Senator Cameron: "In other words, they should not be commercialized."

Mr. Hagenbarth: "In other words, they should not be commercialized. . . ."

#### *Mr. Hagenbarth, the Conservative*

Three months later, when the American people had had time fully to appreciate the destructive character of the demands presented by Mr. Hagenbarth, and had expressed itself in a nation-wide protest against the stockmen's political effort to break the backbone of our National Forest system, here is what Mr. Hagenbarth said through the columns of the December, 1925, issue of the "National Wool Grower," the official publication of the National Wool Growers' Association:

"Unfortunately, it seems that no question of public interest or legislation can be discussed without finding radicals, ranging from unreasonably extreme to unreasonably conservative, taking an active and sometimes blatant part in discussions incident thereto. This has been thoroughly exemplified in the recent discussions concerning certain reforms and betterments on the National Forests that have been asked for by the livestock and ranching interests of the eleven or twelve western public land states.

"For instance, on the one hand we find a very small percentage of users of the National Forests and public range who unqualifiedly make the bald statement that there is and has been no good whatever in the administration of the National Forests by the Department of Agriculture; that such administration has been unjust, inefficient, officious, and serves no good purpose whatever. Another small set of men demand that there be no charge in the way of administration fees or otherwise for the use of grazing on the Forests. Others again are of the opinion that they should have the privilege of rushing to the courts with every minor cause of complaint; that administrative officers of the Forests should be deprived of their functions as such; and that thus the basic law creating the Forests should be in a measure nullified.

"These various classes of extremists taken together would constitute but a fraction of the great rank and file, not exceeding perhaps five or ten per cent, of the level-headed producers who are really unselfishly and patriotically interested in certain reforms which twenty years' experience has demonstrated as being necessary. . . .

"The human element or personal equation enters into the problem to a very considerable extent and must be guarded against on every hand and the problem finally settled, based on sound economic principles and the business welfare, not only of the western states directly involved, but of the entire country as well. Petty personal complaints must be eliminated and sound principles and economics should prevail.

"On the other hand, we find in certain sections of the public press equally radical reports which plainly and in a partisan manner misrepresent the attitude and demands of the great conservative and reasonable bulk of livestock producers of the West. Whether this has been caused by a skillful system of propagandism or ignorance or by a desire to prejudice the public against the reasonable demands of livestock producers, we are unable to determine. The fact remains, nevertheless, that these conservative people have been misrepresented. They have been pictured as rapacious ravagers of the Forests, de-

Senator Kendrick: "Anyway, as I understand you, Mr. Hagenbarth, the basis for the fixing of fees you wish to be cost of administration?"

Mr. Hagenbarth: "Well, that is one school, and there are others who say there should be no fees whatever. But the general idea is that the fees should not be more than double the cost of administration; that the fees on such a basis should go to the States, and that the Federal Government should pay for the administration of the Forests."

manding everything and conceding nothing. They have been held up as would-be wreckers of a national policy of conservation. They have been pictured as selfishly seeking to take the bread from the mouths of small communities, small ranchers and stockmen, as polluters of the waters, and as altogether selfish and unreasonable and a blot on the body politic.

"This propagandism against the reasonable and legitimate demands for reform of a national forest policy has gone so far that the head of one of the prominent government bureaus directly involved has seen fit and had the influence to secure the columns of a magazine which is perhaps the greatest avenue of publicity in the United States, to make such a statement as is prejudicial to a calm, dispassionate and reasonable discussion of the question of grazing on the National Forests. This article, which is, as a whole, a very able presentation of the subject, however, takes occasion to enlarge unduly on the activities and unreasonable demands of a very small minority of such radicals as we have above described, and has done it in such a manner, whether intentional or not, as to color wrongfully the whole picture and give the impression that livestock men as a rule are entirely selfish and altogether unreasonable. Was this an example of bureaucracy run mad, or was it written in the super-heat of passion and anger caused by the unreasonable attitude of the small minority of livestock men above pictured? In any event it was a great injustice to the public and the country, which is primarily interested, as well as to the great conservative body of livestock men who are legitimately endeavoring, and in a proper manner, and without discussing personalities, to effect reasonable reforms which will redound to the credit and ultimate benefit not only of the industry involved, but of the National Forests themselves.

"The National Forests are one of the greatest resources of the West and of the nation. Every reasonable and patriotic citizen of the West is seriously concerned with their proper conservation and use. One of the greatest resources of the Forests is the forage and grazing thereon. This use has never been defined or legalized by law and its use has been temporary and by permission only. . . .

Experience has demonstrated that the basic law should be amended to correct this situation and define the use of the Forests by law in so far as their forage and grazing is concerned. This is the fundamental thing that is asked by livestock producers in particular and the West in general. The question of fees and administration and other details are minor, and can be equitably arranged if handled under the rule of reason."

The remainder of Mr. Hagenbarth's article is devoted largely to commending the recent statement of grazing policy issued by Secretary of Agriculture Jardine, which supports fully the Chief Forester regarding the demands of the stockmen. This comes with surprising inconsistency since the Chief Forester openly and publicly opposes the radical demands which Mr. Hagenbarth presented to the Senate Committee in Salt Lake City.



## Our Most Urgent Public Park

*(Continued from page 78)*

range of the tree. Redwood is unique in that it sends up sprouts from the stump after cutting. This power is very persistent and the majority of trees, even those of great age, produce new sprouts which grow with great vigor and develop into a second crop of trees. There is, however, considerable space between the clumps of sprouts, which should be filled with seedling growth. Already a number of lumber companies have become interested in the problem and, with wise foresight, are planting trees in large numbers. The growth and production of Redwood is very extraordinary. Limited areas of naturally grown timber have shown an annual growth of over 2,000 board feet an acre. Finally the League is encouraging scientific studies which will aid in the practical problems of reforestation and reveal also facts of importance in the general understanding of tree and forest growth.

The proposal is to incorporate the lands that may be acquired into public parks. Already some 2,700 acres of land have been secured along the Redwood Highway. These lands have been acquired in part by an appropriation of the state and in part by gifts from interested citizens. They have been made into state parks and are administered by the state, though the State Forester is greatly handicapped by the inadequacy of appropriations. A special feature will of course be made of the parks that are proposed for the Dyerville and Smith River areas. It is quite possible that these should be owned by the Nation rather than by the State of California. I am personally inclined to this view, because I believe that the parks would be better administered. The attitude of the Governor in defeating constructive park legislation at the last session of the legislature was not encouraging for a plan of placing the responsibility of the larger Redwood parks in state custody.

In any event the acquisition of the areas at Dyerville and Smith River and the completion of the Highway groves, is a matter of national concern. We can not afford to permit the destruction of a natural feature that constitutes one of the great wonders of the world, comparable in importance to the Grand Canyon and the Yosemite Valley. It would be quite appropriate for the Nation itself through congressional appropriations to acquire the Redwood lands essential for permanent park purposes. The uncertainties of such action and the very long delays incident to making federal appropriations would probably prevent the public acquisition of the most important areas. It is necessary therefore to appeal to the generosity of the public to make donations to enable the purchase of the choicest areas of the Redwood for a National Park. Already the Save the Redwoods League has received from private donors \$750,000 toward the acquisition of the Dyerville Flats and the Bull

Creek forest. The projects as outlined by the League will require several million dollars. No worthier public undertaking for the generosity of men of means can be found, and no more satisfying way to contribute to the public welfare.

There are numerous National Park projects before the people. Some involve a transfer of lands now in National Forests to the status of National Parks. Some involve the creation of Parks from the Public Domain. Several would necessitate the acquisition of private lands either by public appropriations or gift to the Government by private donations. The most conspicuous proposal falling in the last-mentioned class is the proposed Big Smoky National Park in Tennessee and North Carolina. This is in a region which should without question be brought into public ownership so that the forests may be properly protected and administered. I am personally familiar with the country, and as a result of my study of it a number of years ago when Chief Forester I undertook to begin its acquisition for National Forest purposes under the Weeks law. Because of its importance in watershed protection, it is quite appropriate for the Government to acquire it under existing legislative authority. This would probably be the simplest procedure to bring the area into public ownership.

The Redwood problem is, however, the most pressing of all National Park projects because the forest alone is the feature of commanding interest; because the trees are from five to ten times as old as the trees in the Southern Appalachians; because the destruction of the best of them is imminent; and because the restoration of primeval conditions after lumbering is beyond all possibilities. The emphasis on the Redwood undertaking is not a reflection on the value of any other areas for park purposes. It is rather to call attention to the fact that it is the most urgent from every standpoint and must be acted upon now before it is too late.

The purpose of the establishment of the proposed Redwood parks is not primarily for recreation. Thousands of people would, of course, visit them, and camping facilities in appropriate places should be provided. Their purpose is rather to preserve a great monument of nature,—a monument that exists nowhere else in the world—that will otherwise in the course of industrial development be destroyed. The project is not one based merely upon sentiment. The fact that the Redwood forest areas proposed for public parks are the best and most extraordinary that can be found constitutes a challenge to the interest and support of every person who realizes the value to our people of the permanent preservation of the finest things that nature has provided.



# A Last Great Timber Stand

By JOHN C. BURTNER

AS the eyes of the lumber world turn toward the last stand of America's great virgin timber areas—the Pacific Northwest—the leading forest school in that territory, situated at the Oregon Agricultural College, is moving in a big way to insure the perpetuation of one of that state's leading industries and one of the nation's most vital resources.

The latest move in this direction is the acquisition by the school, through action of the board of regents of the college, of a 341 acre tract of timber land for development into an arboretum and forest laboratory. The Oregon Agricultural College at Corvallis is situated in the foothills of the Coast Range mountains and within a few miles of commercial timber areas and active sawmill and logging operations. This peculiar condition permitted the acquiring of a tract of land highly suitable for experimental purposes, but six miles from the forest school buildings on the main college campus. Though it is largely timber covered at present, it is but a quarter of a mile off the paved Pacific Highway and easy of access to those who will develop it, and to visitors as well.

Northwest states are now looking seriously to the adoption of a comprehensive forestry program for the future. Towards the establishment and execution of such a program through the years to come, the new experimental area is dedicated. Reforestation experiments will, of course, be carried on extensively, but in



THE BASE OF A GIANT DOUGLAS FIR—ONE OF THE MON-ARCHS THAT IS PASSING

addition experiments in thinning, pruning, etc., will be conducted in a portion of the tract covered with second growth timber ranging in size from seedlings to trees 30 inches in diameter.

As this timber comes to maturity it will be logged off and sold by the school, affording additional laboratory work and experiments in various methods of harvesting timber from the standpoint of practical conservation.

Most of the timber on the tract is Douglas Fir, the chief commercial lumber species of the northwest. Various other species, chiefly the Garry or white oak, *Quercus garyana*, are found on the tract. Some 80 acres is logged off land and on this area the arboretum proper will be developed where thousands of specimens of native and exotic species will be experimented with. More than 1000 trees of the principal western species have already been planted by the students at the "ground breaking" held in celebration of the purchase.

The state of Oregon has recently acquired a state forest reserve some 75,000 acres in extent which formerly was a portion of the Umpqua National Forest. This state preserve has been placed in the custody of the school of forestry for still more extensive experimentation. The United States government is also cooperating in developing trained forest leaders by turning over the work of cruising a certain large area in the Cascade National Forest to the school. This work is carried out on annual camping trips made during the school year by all the students of the school. The work is accepted as final by the government.



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## Bolling Arthur Johnson

THE cause of conservation lost a staunch friend with the passing of Bolling Arthur Johnson on December 19, 1925.

He had been called home by the sudden death of his wife, Rose Shumate Johnson, who had been his close companion and counsellor since 1905. Funeral services for both were held on December 21.

Bolling Arthur Johnson was born in Fayette County, Ohio, on August 5, 1862. He was a student at Monmouth College and first took up the publishing business as a founder of the firm of Huffman and Johnson at Lexington, Kentucky, in 1884. He was successively associated in important capacities with *The Timberman*,



BOLLING ARTHUR JOHNSON  
1862—1925

Chicago, *The Lumber Trade Journal*, New Orleans, and the *American Lumberman*. He was president of the American Lecture Association in 1900 to 1902 and in 1911 became president of the Lumber Review Company and editor of the *Lumber World Review*. It was in the latter connection that he was best known throughout the country and his editorial feature, "Through Our Wide East Windows" has done much through the years to inspire his friends.

Mr. Johnson was a loyal friend of The American Forestry Association and served as one of its vice-presidents, during 1923. He was especially active in the arrangements for the Semi-centennial Meeting of the Association in Chicago in January, 1925.

His great contribution to forestry has been his earnest and sustained appeal for closer and more efficient utilization and for commercial reforestation.

He was peculiarly gifted in his original form of expression and this had been a constant advantage in reaching his readers with facts which might otherwise have been neglected.

## Yes, We Have No Damages Today

ALTHOUGH twenty years of study in the Southwest by investigators of the Forest Service have definitely established that unregulated grazing is injurious to forest growth, these results appear to have made no impression upon Mr. F. J. Hagenbarth, President of the Woods Livestock Company, the largest grazers on the National Forests. Neither, apparently, have the experiences of France, England, Spain and other countries, where uncontrolled grazing, extending through many years, has been one of the most important factors in forest destruction, if we are to judge from the following testimony which Mr. Hagenbarth, speaking as president of the National Woolgrowers' Association, gave the sub-committee of the Senate Public Lands Committee at its hearing in Salt Lake last August.

The Chairman: "Is the grazing of the Forests beneficial or injurious so far as the trees are concerned?"

Mr. Hagenbarth: "I would say that it is beneficial just looking at it from the standpoint of the timber, because, to mention just one matter, it reduces the fire hazard to a considerable degree, both by the removal of surplus grass and weeds that would otherwise accumulate and that would shatter and remain dry in the fall; and further by reason of the continuous patrol of the Forests by cattle and sheep men, who will give notice of any serious fire, and who will put out any incipient fires."

The Chairman: "As to the question of reforestation, does grazing tend to promote growth of new trees? In other words, does livestock traveling over the range break the soil and give cultivation in perhaps a crude way to seedlings?"

Mr. Hagenbarth: "I can only answer that as an individual and from personal observance. I do not know whether that follows or not, but I have seen, on a range occupied since 1888, that very thing take place, where young fir trees have grown up in my time until they are perhaps 10 or 12 feet high—little Christmas trees, you might call them. They certainly were not prevented from growing."

"Now, as to the natural process, I should have to say that grazing would increase the growth of timber, but as to how much I do not know, because that is a subject that is beyond my knowledge or observation."

## Sub-Committee Holds Hearing on Forestry Items

ON January 5 the Agricultural Sub-committee of the House Appropriations Committee held a short hearing at which unofficial testimony was taken on certain forestry items of the Agricultural Appropriations Bill for the coming fiscal year.

Those who appeared were Arthur T. Upson, representing the National Forestry Program Committee, who spoke in behalf of needed increases for the Forest Products Laboratory at Madison, Wisconsin; Shirley W. Allen, Forester of The American Forestry Association, who submitted a statement urging \$3,000,000 in place of \$1,000,000 for purchase of forest land and \$1,500,000 in place of \$660,000 for fire cooperation under the



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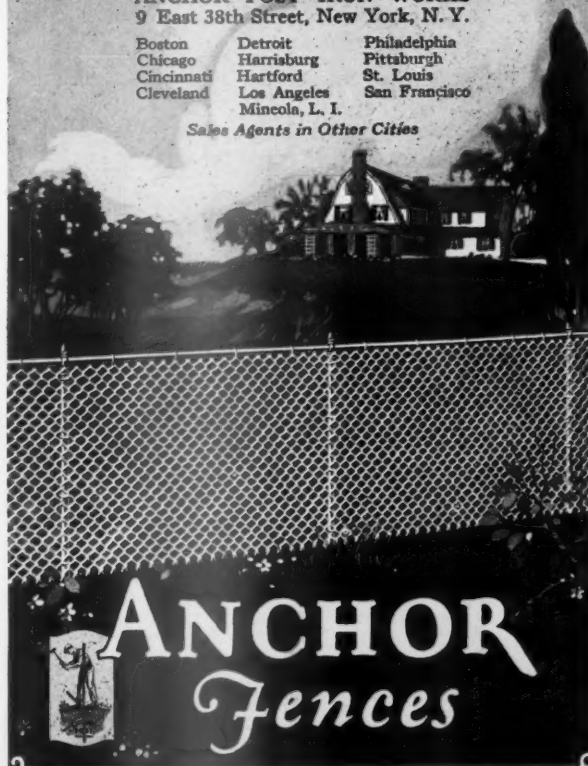
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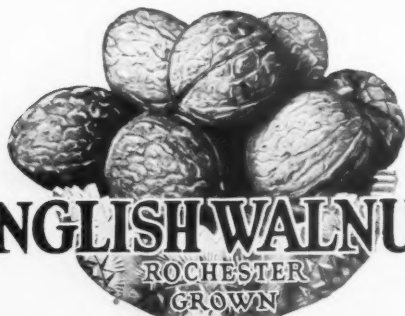
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Clarke-McNary Law; Philip W. Ayres of the Society for the Protection of New Hampshire Forests who spoke on the need of \$3,000,000 for forest land purchase; H. S. Ryerson of the Conservation Association of Southern California, who spoke in behalf of the California Forest Experiment Station, and E. T. Allen of the Western Forestry and Conservation Association, who explained the need for funds to cover the fire weather warning service of the Weather Bureau. Congressman Albert Johnson of Washington supported Mr. E. T. Allen's testimony and Congressman Walter F. Lineberger of California appeared in behalf of the California Experiment Station item.

While the attitude of the Committee was not encouraging, it is hoped that some badly needed increases will result from the hearing.

## Ginseng Culture Fraught With Uncertainty

By ETHEL C. BURNETT

MUCH enlightenment as to the possibilities or impossibilities of profit to be obtained in ginseng culture, is needed by the public, says Prof. John Davidson, F. L. S., of the botanical department of the University of British Columbia, Canada. The many inquiries received by him show how widespread is the interest of this subject.

Agriculturalists who have failed to make good in fruit farming or other branches of rural activity, are writing to know if there is not a living to be made in drug plant culture, particularly in the production of ginseng.

Prof. Davidson has been making an exhaustive study of drug growing in his province, and finds his climate admirably suited to medicinal plant culture, but warns beginners that the undertaking is fraught with many difficulties.

It is true, he says, that as much as \$7,500 can be realized from one acre of ginseng, but the producer must be prepared to gamble with chance. Five years are required to grow a ginseng root; and it has been found there are twenty-two different diseases and fungus plagues which may attack the plant during that time. The whole area has to be covered with lattice work; and danger from thieves when the plant nears maturity makes it almost necessary to sit guard over the plot with a gun. Roots sell for from \$5 to \$20 a pound, and it is officially stated that two barrels of very perfect specimens which passed through Vancouver, B. C., recently, bound to the Orient from New York, sold for \$75 a pound.

Ginseng is not valued for its medicinal qualities, but it is in demand among the Chinese as a charm. A bride loves to receive ginseng roots at her wedding, as these are supposed to bring "long life, much happiness and many children."

# AROUND THE STATES



## With The American Forestry Association

### Foresters Meet at Madison

A declaration that forestry research in the United States should be recognized by a special law such as the Hatch, Adams and Purnell acts covering agricultural experiment stations, was an important result of the annual meeting of The Society of American Foresters at Madison, Wisconsin, December 16 and 17, 1925. The meeting was well attended by foresters from all parts of the country and was the first occasion on which it had been held west of the Allegheny Mountains.

The Charles Lathrop Pack prize of \$500 for a paper presenting in a popular way the best contribution to the advancement of forestry was awarded to John D. Guthrie of the United States Forest Service, Portland, Oregon, for his paper "The Public Relations of Forestry." There were fourteen papers entered in the contest.

The Society went on record as favoring

the McNary-Woodruff Bill and endorsed the position of Chief Forester Wm. B. Greeley that there should be no impairment of the

Officers elected for the year 1926 are: President, Samuel T. Dana, Director North-

eastern Forest Experiment Station, Amherst, Massachusetts; Vice President, Paul G. Redington, District Forester, U. S. Forest Service, San Francisco, California; Secretary, G. Harris Collingwood, Extension Forester, U. S. Department of Agriculture, Washington, D. C.; Treasurer, Samuel B. Detwiler, Chief of Office of Blister Rust Control, Bureau of Plant Industry, Washington, D. C.; Member of Executive Council, Thornton T. Munger, Director of Pacific Northwest Forest Experiment Station, Portland, Oregon.

### A WOODEN RHYME

By A. G. Jackson

There was a wooden-headed man who dropped a wooden match  
Among some wooden twigs and bark inside his woodlot patch.

The match flamed up and fired the wood, the blaze spread all around,  
Until some noble wooden trees were burned off at the ground.

And men with wooden-handled spades, and wooden-handled hoes  
Dug out the fire edge all around with swift and sturdy blows;

While others armed with axes keen, with straight-grained wooden helms,  
Cut down the blazing wooden snags, regardless of themselves:

Until at length the fire was stayed, its damage plainly seen,—  
A blackened waste of wooden stumps, that once was woodlot green.

The news flashed o'er the waiting wires, upheld by wooden poles,  
And reached the sanctum of the press, which spread of news controls.

On wooden paper, printed clear, the news flew round the land,  
Into the wooden homes of men where wooden fixtures stand.

In wooden chairs men sat themselves and read the tale about  
The damage careless fire had done before it was put out.

And this the judgment they expressed before they went to bed:  
"A man who starts a careless fire must have a wooden head;

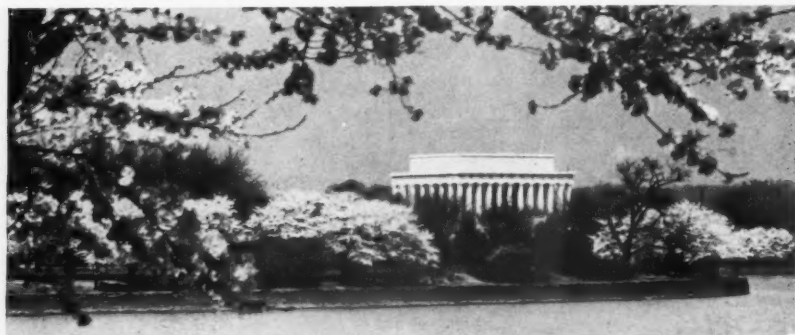
And soon or late, as sure as fate, or from these ways we turn,  
We'll have no trees upon our hills for wooden-heads to burn!"

### Grazing Fees Waived

Fees for grazing livestock on a number of National Forests in Arizona, Utah, and New Mexico will be

authority of the Secretary of Agriculture to exercise complete control over grazing and other secondary uses of the National Forests.

waived for the greater part of 1926, according to an announcement by Wm. M. Jardine, Secretary of Agriculture. This waiver of



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range charges covers the first quarter of the year included in most of the 12-month grazing permits issued during 1925. In addition, the first payments customarily due under grazing permits issued on or after April 1 are waived. However, under the program approved by the Secretary of Agriculture, the second payments under all grazing permits issued during 1926 will be required.

"This action has been taken," said Secretary Jardine, "in recognition of the serious drought from which many of the southwestern ranges have suffered during recent years. All of the grazing fees on these National Forests were waived during 1925, in compliance with a resolution passed by the last Congress. While the drought in the Southwest has been broken and forage conditions are now greatly improved, the livestock industry of the region is still suffering the effects of a series of dry years which greatly augmented the losses caused by economic depression. Some time must elapse before the Southwestern sheep and cattle producers can recover fully from the effects of the drought; and I believe that the extension of further relief to grazing permittees on the National Forests is therefore fully warranted. The situation has been studied closely by the Chief of the Forest Service and his associates, and this waiver of the grazing fees has been recommended by them.

"But it is my belief that by the latter portion of 1926, conditions will be sufficiently bettered to justify the resumption of normal payments for grazing privileges on the National Forests and the normal income which the counties and the Federal Government receive from this source."

### Charles Lathrop Pack Presents Forest to Yale

One of the most recent gifts of the many benefactions of Charles Lathrop Pack is a demonstration forest presented to Yale University. This tract which is located directly on the trunk highway in the mountains near Keene, New Hampshire, will be administered in conjunction with other areas controlled by Yale University, now aggregating about 1,000 acres.

Thousands of people will pass these tracts during the summer on their way to the White Mountains, according to Dean Henry S. Graves and the meaning of the various forestry operations will be demonstrated to the public through appropriate signs and opportunities to visit the area in company with the local forester. Mr. Pack's gift is especially valuable in forwarding the purpose of the Yale Forest School to extend its holdings to an area of 2,500 acres which will be sufficient to make a sustained yield operation possible.



### Forestry Legislation Before Congress

A number of bills more or less intimately connected with forestry had been introduced in the 69th Congress up to the time this issue went to press.

The long looked for grazing bill was introduced in the Senate by Senator Stanford on January 16, and is reviewed elsewhere in this issue. Senator Cameron's joint resolution, S. 13, proposes to give the Secretary of Agriculture the right to waive grazing fees for National Forest forage upon application by stockmen. It is interesting that the Secretary, evidently assuming he possesses this right without Congressional sanction, has already waived certain grazing fees in National Forests of Arizona, Utah and New Mexico. Two grazing bills had been introduced by Senator Phipps, one to reduce the grazing fees on the National Forests and the other to establish grazing regulations on the unappropriated Public Domain. The last bill is the one mentioned by the President in his annual message to Congress.

Two bills have been introduced providing for the addition of land to National Forests in Colorado. For California, legislation seeks to provide for the City of Los Angeles and vicinity one million dollars for fire prevention and suppression of the four southern California National Forests.

Two Weeks Law appropriation bills have been introduced, one providing for the expenditure of fifteen million dollars and the other—the McNary-Woodruff bill—for forty million dollars distributed over a period of years for the purchase of lands for forest purposes. For Alaska the bill of importance is one seeking to make permanent the right of the Department of Agriculture to export National forest timber. It also permits the exportation of timber cut on public land. At present only pulp wood and birch are permitted to be exported from this territory.

A number of exchange bills are proposed, one of which authorizes the Forest Service to give titles to lands within six miles of existing National Forests in exchange for forest timber or land. New Mexico proposes an exchange whereby that state would relinquish title to state timber holdings in exchange for grazing land within the National Forests or on the Public Domain. The state of New Mexico is eager to get into the grazing business preferring this to timber.

Two road bills are proposed, one appropriating eighty million dollars for Federal aid, and eight million dollars for forest roads. The second bill provides for assistance in the construction of all roads leading to National Forests. No

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specific amounts are mentioned in these bills.

Forest research has not been forgotten. One bill introduced by Representative Fitzgerald of Ohio would appropriate fifty thousand dollars to establish a forest experiment station in the Ohio and Mississippi Valleys. Another bill seeks to make immediately available, forty thousand dollars for the Appalachian Forest Experiment Station. A third bill introduced by Senator Ashurst would provide twenty-five thousand dollars for establishing and maintaining a Forest Experiment Station in Arizona for research in that state and in adjacent states.

A bill introduced by Senator McNary provides to turn back 50% of National Forests receipts to the states instead of 25% as is now being done.

### North Dakota Joins the Forestry Procession

As announced in the August number of AMERICAN FORESTS AND FOREST LIFE, North Dakota has reopened the State Forest School at Bottineau under the leadership of Francis E. Cobb, who was appointed to the faculty July first. Work was immediately started on a state nursery under the supervision of Sydney S. Burton of Minnesota. Charles A. Gillett has been appointed Extension Forester. Mr. Cobb has had wide experience in the Forestry Department of Cornell University and the Bureau of Plant Industry Field Station at Mandan, North Dakota. He is a graduate of the University of Minnesota. Mr. Burton has been in charge of the Windbreak Project, carried on through the Forest Experiment Station at Cloquet, Minnesota. Mr. Gillett comes from Cornell University and has had specially valuable experience

in shelterbelt planting work throughout North Dakota. Plans are under way for a complete survey of all natural and planted woods in the State, with the cooperation of county agents in the state, for demonstration forest plantings and experimental planting on sand dune areas and areas in the nearby Turtle Mountains.

### Dr. Schenck Will Lead European Forestry Tour

Planning to attend the International Forestry Congress in Rome, Dr. C. A. Schenck, who is now giving a series of lectures at the Forest School of the University of Montana, will leave New York on April 3 with a number of foresters. A two-months' tour will be made through Europe, visiting interesting municipal, state and private forests in the Netherlands, Belgium, Germany, Switzerland, Italy, France and England. A full week will be spent in Rome at the International Forestry Congress and a number of side trips have been planned to visit antiquities and examples of Italian forestry. The work of forestry associations and schools will also be noted throughout the tour.

Dr. Schenck's wide acquaintance with European forests and with forestry conditions adds special interest to the projected tour. The expenses for participants going third class (Steamship Volenden, Holland-American Line) will be \$500; second class, \$600; and first class \$700. This estimate of expense is based on similar tours for the two preceding years. The party will return, leaving Southampton May 27, arriving in New York June 3. Foresters and others who are interested in this trip may communicate with Dr. Schenck at the University of Montana, Missoula, up until March 10th.

### Bulb Quarantine Will Stand

The restrictions on the entry of narcissus bulbs authorized by Secretary of Agriculture Wallace three years ago went into effect as scheduled on January 1, without modification. Other bulbs to which the restrictions were to apply will be permitted entry under permit and inspection pending further investigation.

In commenting on his action, Secretary Wm. T. Jardine said the information available in 1922 on the entry of pests on these bulbs undoubtedly justified fully the placing of the restrictions, and that the facts obtained since that time have emphasized the menace to agriculture then indicated.

"It is unfortunate," he said, "that in protecting our various crops against pests and diseases some interests must suffer. The evidence shows the danger to be such, however, that I feel no one charged with the safeguarding of American agriculture could do other than restrict the entry of these bulbs. I do not doubt the sincerity of those who have reached other conclusions, and I have considered their arguments carefully, but the weight of evidence seems

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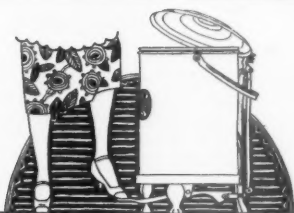
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to me to rest in favor of retention of the restrictions."

It is further pointed out by the Secretary that infestation is not yet serious in this country from the three pests usually associated with imported narcissus bulbs. He declares that growers of onions, a crop menaced by one of the bulb flies, and those engaged in raising clover and alfalfa, threatened by the eel worm, are entitled to protection.

### Unlawful to Kill Swans Anywhere in United States

The 10-year close season during which swans may not be hunted anywhere in the United States expires December 7, 1926. This restriction was made under the provisions of Article 3 of the treaty between the United States and Great Britain enacted for the protection of birds migrating between the United States and Canada. The Biological Survey of the United States Department of Agriculture, which makes this announcement, says that the federal law to enforce the treaty also prohibits the taking of migratory birds except as permitted by regulations thereunder promulgated by the President. Therefore, even with the end of the 10-year close season, it will still be unlawful to kill these birds at any time, until the migratory-bird treaty act regulations are amended to allow the "killing of swans" during a stated open season. An exception will be made for scientific purposes, however, under permit of the Secretary of Agriculture.

### Forest Service Wins Important Damage Suit

At a recent sitting of the United States District Court at Missoula, Montana, the case of United States vs. Anaconda Copper Mining Company was decided in favor of the United States, and \$534.52, the full amount claimed, was awarded by the jury.

In this case, the Forest Service alleged general negligence on the part of the company due to its failure to control a fire on its land when notified by the district forest ranger that the fire was spreading and threatening adjacent National Forest lands. When the company failed to take steps to control the fire on notice from the ranger, he placed Forest Service employees on it while it was on company land about one-half mile from the Forest boundary, and succeeded in controlling it while it was still a quarter of a mile from the Forest boundary, at a cost of \$534.52 for labor and supplies. This sum the government sought to recover.

The company denied negligence, denied that the fire threatened the Forest, alleged that it had men available who could have controlled the fire at any time on short notice if it threatened the Forest, and refused to pay the bill.

Evidence submitted by the Forest Service convinced the court that the fire threatened



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the Forest, that there was negligence, and that the Forest Service was justified in going upon the company land to extinguish the fire to prevent threatened damage to government property.

The case is of great importance to all owners of timberland in that it emphasizes the responsibility of an owner in the matter of preventing fire on his land from threatening the property of another.

### Porto Rico Seeks Clarke-McNary Help

Representative Felix Cordova Davila has introduced in Congress a resolution calling for an amendment of the Clarke-McNary Act so that its provisions may apply to the territory of Porto Rico.

### Hearing Held on Southern California Fire Protection Bill

Figures showing the complete dependence of southern California agricultural interests upon the water from the mountains within the Santa Barbara, Angeles, San Bernadino and Cleveland National Forests were presented to the Senate Committee on Agriculture and Forestry on January 12 and 13. This hearing covered the bill introduced by Senator Hiram W. Johnson which would authorize the expenditure of \$1,000,000 over a number of years for fire breaks, telephone lines and other needed improvements by the Federal Government on its own lands provided it is matched by equal amounts expended in advance by local interests. It was shown that erosion following fires interfered seriously with water storage and that the Federal Government could not effect adequate fire prevention without greater expenditure. Those who appeared were: Chief Forester William B. Greeley, Francis Cuttle, Riverside, California; H. S. Ryerson, Los Angeles, California; W. C. Mendenhall, Chief Geologist, U. S. Geological Survey; E. A. Sherman, Associate Forester, U. S. Forest Service, Congressman Walter F. Lineberger of California and author of the companion bill in the House, and Shirley W. Allen, Forester, The American Forestry Association.

A similar hearing was held on Mr. Lineberger's bill on January 16.

### School Children Replace Trees Lost by Fire

Acting under the directions of Susan M. Dorsey, Superintendent of the Los Angeles city schools, heads of all agricultural education departments will cooperate with the Conservation Association and Federal and county foresters in the development of a workable and effective reforestation program in which the pupils will have an important part. They will also aid in furthering the setting aside of 40 to 160 acres in the Angeles National Forest, on lands burned by recent forest fires, for the systematic planting of trees under the guidance of federal and county forestry officials.



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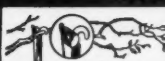
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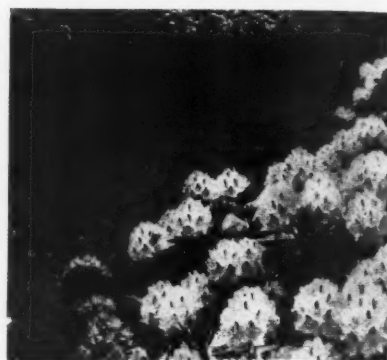
### California Enforces Compulsory Patrol

With only 1,500 of the 3,500 pine timber owners in California affected by the new compulsory patrol law, under forest protection agreements, the State Board of Forestry has started a drive to enforce compliance with the measure. This will involve agreement on the part of timber land owners to maintain their own forest fire patrol organizations or to contribute toward the upkeep of a State Fire Warden in their territory. Good progress has been recently made according to State Forester M. B. Pratt in slash burning throughout the northern counties.

### A Forestry Council for Northwest Forestry Experiment Station

In line with his policy to enlist the industries themselves in planning and reviewing the work which the bureaus are doing, Secretary of Agriculture William T. Jardine has appointed an advisory council for the Pacific Northwest Forest Experiment Station. This council will advise Director T. T. Munger in planning and correlating research projects which will best administer to the interests of those working toward the perpetuation of forest industries.

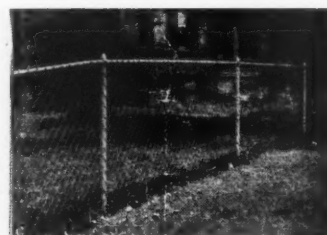
Lumbermen, loggers, trade associations, forest schools and State Forestry Departments will be represented on the council and the British Columbia Forest Service has been invited to have a representative on account of the similarity of forestry problems across the border. Those who have been asked to serve are: A. C. Dixon, Booth-Kelly Lumber Company, Eugene, Oregon; E. S. Collins, Ostrander Railway & Timber Company, Portland, Oregon; R. W. Vinnedge, North Bend Timber Company, North Bend, Washington; Russell Hawkins, Whitney Company, Garibaldi, Oregon; Frank H. Lamb, Wynooche Tim-



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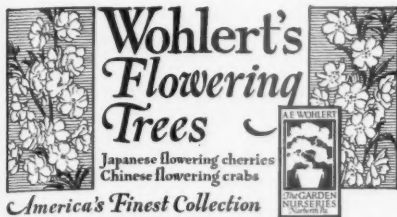
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1 Crab Ioensis, sgl. pink, fragrant.....	2.00
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### Florida Bird Life Threatened by Drainage

One of the last of America's unspoiled wilderness areas is suffering from drainage operations in the Florida Everglades, according to Mrs. Minnie Moore Wilson of Kissimmee, who is an authority on bird life. Even the remotest part of jungles are affected by the operations. The food supply of aquatic birds is pitifully reduced and migratory fowl arriving in Florida in a half-starved state from the North are confronted with starvation conditions in the Everglades. Alligators and turtles are hunting new homes. The heron, egret, roseate spoonbill, crane, white ibis and other fish-eating birds are without food. Fire often runs through the dried out jungle forest, reducing it to desolation. Tons of fish are said to be left high and dry from the cutting of drainage ditches. Sportsmen and nature lovers in Florida are appealing for help to enact a Federal Game Refuge Law to provide means for saving some of this virgin wilderness of Florida.

### Lumber Record Broken in 1925

According to the totals of weekly softwood reports made to the National Lumber Manufacturers' Association by approximately 350 of the larger mills, the lumber production of the United States was slightly larger in 1925 than for any year since 1916. These mills reported a production of 12,428,809,277 feet, as compared with 11,828,948,847 feet in 1924; and slightly more than for 1923, hitherto the peak year since the beginning of the World War. Applying the accepted ratio of production between the reporting and the non-reporting mills, it is calculated that the total production has been between 37,000,000,000 and 38,000,000,000 feet. Graphically stated, this would make over 1,000,000 ordinary dwelling houses.

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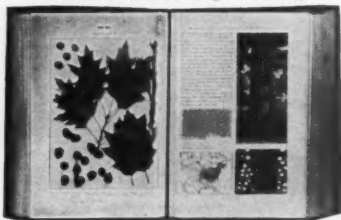


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## BOOK REVIEWS

**THE FIGHT FOR EVEREST.** 1924. By Lieutenant-Colonel E. F. Norton, D. S. O. and other members of the Expedition. With maps and illustrations. Longmans-Green & Company (New York), 1925. Price \$7.50.

This book is an exact account of the last daring effort made to conquer Everest—the supreme exertion of the men who "reached nearest the summit and stood the hardest buffetings and faced the gravest danger." Altho designated as the "record of a repulse," we claim it should rather be written down as a victory. The value to the world of any effort must be measured by its benefits to mankind. To have come, as Col. Norton did, to within 900 feet of the summit of the world's highest mountain: to have even *reached* the summit, as did possibly Mallory and Irvine, who lost their lives in the attempt and whose story must remain unwritten—such achievement, coupled with the fact that the entire expedition is firmly determined to renew the attempt clothes the whole undertaking with a sublime worth-whileness, for it proves definitely and practically the heights to which the spirit of man can aspire. The recital of how they went forward, in the face of suffering and hardships seemingly beyond the power of men to endure,—intense cold and extreme and hitherto unreachd altitudes, is nothing short of heroic.

Whether one is in sympathy with the general idea of the project or not, he cannot refuse to recognize the great contribution this Expedition has made to the world, nor fail to be inspired by its written record. It is a thrilling story, and more—because it is a human document of intense interest, and will hold the fascinated attention of the reader from cover to cover.

### Wild Flowers in Natural Colors

A set of twelve beautiful habitat views of wild flowers, printed in accurate colors on post cards by the four-color process are now available. The series includes Red Columbine, Lotos, Cardinal flower, White Trillium, Fringed Gentian, Showy Lady's Slipper, Dutchman's Breeches, Mountain Laurel, Dogwood, Bloodroot, Trailing Arbutus and Maidenhair Fern. The Latin and common name, with a little description of the flower, is on the back of each card. These pictures will be valuable to the teacher, and most interesting to the young students in nature classes.

The cards are being distributed by the Wild Flower Preservation Society, Inc., 3740 Oliver Street, Washington, D. C., at

25 cents for the set, with 2 cents additional for postage on mail orders.

### Connecticut Issues Book on Common Trees

Cooperating with the United States Department of Agriculture, the Connecticut Forest and Park Department has just issued a pocket manual on the common forest trees of Connecticut. The publication is intended to supply the demand of the general public for accurate descriptions of common trees in non-technical terms and is distributed free of charge to the citizens by State Forester Austin F. Hawes who cooperated with W. R. Matton of the Forest Service in its preparation.

### Saving Chocorua's Skyline

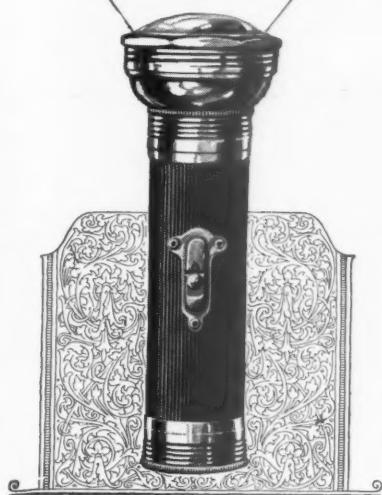
With the hope that some other high point of equal value for fire detection may be found in the neighborhood of Mt. Chocorua in the White Mountains National Forest, a fund is being raised to provide for a careful study of the region. This movement follows the appointment of a committee at the last annual meeting of the Society for the Protection of New Hampshire Forests to work out a means of preserving the Mt. Chocorua skyline from unnecessary blemish by the erection of a fire observation tower. This point is one of the outstanding bits of scenery as one looks across Lake Chocorua and wide-spread interest has been shown in its behalf. The special committee includes Allen Chamberlain, Society for the Protection of New Hampshire Forests; Arthur C. Comey, Appalachian Mountain Club; Edward Cummings, summer residents of the Chocorua region; Elmer D. Fletcher, New Hampshire State University; and Roger Twitchell, Chocorua Mountain Club.

### Game Refuge Bill Up Again

The Game Refuge Measure, slightly modified in form, is in line for reintroduction in the House as this issue of AMERICAN FORESTS AND FOREST LIFE goes to press. The Senate measure has already been reintroduced by Senator Smith W. Brookhart from Iowa in the original form, but probably will be modified to conform with the House Bill.

This course with the House bill has been decided upon by the friends of the game refuge idea after failure of the plan worked out by a committee of leaders appointed at the Denver Convention of Game Commissioners last August. The object of this committee was to redraft the bill so that it would contain a different method of administration, financing and acquisition of game refuge and public shooting grounds. Some of the leaders felt that money should be set aside from the excise tax on arms and ammunition to be used for this purpose, replacing the federal tax on hunters and fishermen, which was a provision of the old bill. The

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new plan, designed as a common meeting ground for all interests, was only abandoned after it had been submitted to administration leaders and friends of the game refuge movement in Congress who pointed out that the new national tax act would no doubt abolish the excise tax. In addition to the excise tax plan of financing the proposed game refuge system, earnest consideration was given by the committee to the suggestion of the Isaac Walton League of America, who at their last National Convention favored direct appropriation from Congress for this purpose. This was also abandoned upon the advice of the Chairman of the Appropriations Committee of the House of Representatives.

Sportsmen throughout the country will no doubt rally to the support of the new game refuge measure, which is an improved form of the original one sponsored by the American Game Protective Association. High hopes are entertained by conservation leaders for early passage of the measure.

### Phillips Appointed Oklahoma State Forester

George R. Phillips who for sometime has held the position of Assistant State Forester in Indiana, has been appointed State Forester under the new Oklahoma Forestry Commission. He will have headquarters at Oklahoma City and has already assumed his duties. The Oklahoma law was passed last winter and one of the first things to be undertaken is an educational campaign to impress the importance of fire protection and reforestation upon the people of the State.

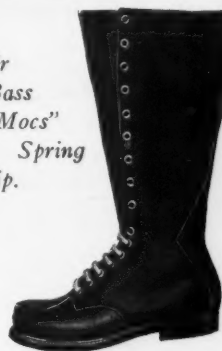
### Beaver Damage in the Adirondacks

Interesting side-lights on the amount of timber destroyed by beavers in the Adirondacks are to be obtained from a report, the demand for which has exhausted the supply of copies, issued by the Roosevelt Wild Life Forest Experiment Station of the New York State College of Forestry, Syracuse University.

Dr. Charles Eugene Johnson, fur naturalist for the station, investigated the beaver situation in the Adirondacks for the purpose of helping in the solution of the beaver problem in the state. In addition to many interesting phases of beaver activities the author of the report gives illuminating facts and figures on the timber that beavers cut down or destroy by building dams and raising the water level of streams and lakes. In the Adirondacks he has found trees 17 inches in diameter cut by beavers. He states that the tree most generally used is the aspen or poplar. Next to that comes the yellow birch. The damage by cutting timber is comparatively small. The greatest damage is done by

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water backed up by beaver dams which results in the destruction of all timber so flooded. The Conservation Commission, according to Dr. Johnson's report, has estimated that the damage to timber by beaver dams varies between \$90 per dam to \$22 per dam. The total damage for 1919 and 1920, the period of the last survey, was thought to be about \$55,000. Dr. Johnson believes this is near the maximum damage.

Dr. Johnson estimated in 1922 that there were probably 8,000 beavers in the Adirondacks and that their total value at \$25 a skin aggregated \$200,000. Since then two open seasons have occurred which have reduced the number considerably. He believes that an annual harvest of 1,500 pelts could be taken each year without seriously diminishing the beaver colonies.

### Forest Service Issues Volume Tables

The foresters of the country will be interested in the recent issue of revised and improved volume tables by the Forest Service, covering eastern hardwoods, eastern conifers and western species. These compilations are the result of work by E. N. Munns, and R. M. Brown, of the Forest Service and cover practically all of the commercial species. Helpful comparisons of different log rules are included and the tables are printed in convenient form for carrying in a cruiser's note-book.

### Appalachian Forest Research Council Meets

The Appalachian Forest Research Council, on January 5, held the second annual meeting of its existence in Richmond, Virginia.

This council was organized by the late Henry C. Wallace, then Secretary of Agriculture, to advise his department concerning forest research work that might be needed in the Appalachian region. The meeting discussed questions of fire protection, forest growth and coordination of forest research activities.

Resolutions were adopted commending the work of Director Frothingham and the staff of the Appalachian Station, and suggesting to the Secretary of Agriculture the need for the continuance of the work in forest pathology and forest entomology. The council endorsed Senator Overman's

bill providing an increase in funds for the experiment station. It suggested, in view of the need for better utilization of blight-killed chestnut timber, the desirability of a conference of timberland owners, timber operators and timber consumers to consider means of efficiently utilizing this material.

### New Indiana State Park

The Lake James State Park of 600 acres was officially turned over to the Indiana Department of Conservation on December 23. This represents the first acquisition by the State of frontage on one of its many inland lakes. The lake itself is one of the finest in Indiana and has an area of 1700 acres. The park is situated in Steuben County within a few miles of both the Ohio and Michigan line and closely adjacent to two main trunk highways. The area comprises a great many acres of woodland and beautiful rolling meadow landscape with a mile and half of frontage on the lake. The policy of the Department of Conservation in developing State parks for the use of visitors, building of hotels and charging admission, will be carried out.

### West Virginia Commission Active

Following the first meeting of the West Virginia State Forest, Parks and Conservation Commission early in December, plans are being made for regional meetings throughout the State during April and May. The Commission was created by the last legislature and empowered to study the demands and possibilities for game preserves, parks and forests and other conservation measures within the State. The meetings will be held in order to gather data for a complete report to the next session of the legislature. Beside Governor Howard M. Gore, who is Chairman, the Commission includes Nat T. Frame, Director of Agricultural Extension, Morgantown; Fred Cowle, Chairman, Game and Fish Commission, Charleston; Dr. I. C. White, State Geologist, Morgantown, and John W. Smith, State Commissioner of Agriculture, Charleston.

### States Active in Tree Planting Cooperation

Section 4 of the Clarke-McNary law, providing for cooperation with the states in the procurement, production, and distribution of forest tree seeds and plants has proved to be a strong stimulus to the states in those activities. Agreements have been executed to provide for this work with the following fourteen states: New Hampshire, Vermont, Connecticut, Pennsylvania, Maryland, Ohio, Indiana, Virginia, North Carolina, Kentucky, Louisiana, Wisconsin, Oregon, and California. In the case of four more states, Iowa, Washington, Idaho, and North Dakota, agreements are in the process of being executed, while in addition to the eighteen already named, eight



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others, Maine, Massachusetts, New York, Michigan, Alabama, Mississippi, Oklahoma, and South Dakota, will have qualified for cooperation, it is anticipated, before spring planting operations begin.

The figures for the eighteen states where the work is now lined up in detail show a total estimated expenditure for the present Federal fiscal year of \$170,000, of which \$139,140 will be the states' share and \$30,860 that of the Federal Government. Each cooperating state receives an allotment of not to exceed \$2,000.

### Forest Engineering at the University of California

Announcement is just made of the appointment of Mr. Myron E. Krueger as Associate Professor of Forestry in the Division of Forestry at the University of California. Mr. Krueger will teach the courses in logging and forest engineering; will conduct investigations in logging engineering in cooperation with lumber companies; and will help students in logging engineering at the University of California to get the best type of practical experience during their summer vacations.

### Arizona Pinon Crop Good

Pickers of pinons, the edible seeds of the pinon pine, are reaping a rich harvest this year in Arizona. More than six carloads are already in storage. The minimum carload is 40,000 pounds, and the price being paid is 15 cents a pound. One merchant has already paid out \$27,000 for pinons and \$400 more for new sacks to ship them in. The product goes to jobbers in New York and has to be recleaned and put in new sacks. Each sack when filled must weigh 100 pounds net. The retail price in New York is said to be about 30 cents per pound.

### Conservationists Meet in the Northwest

The annual meeting of the Western Forestry and Conservation Association was held in Victoria, British Columbia, December 7-10.

Among the chief resolutions passed were those urging Congress to appropriate \$1,500,000 under the fire cooperation section of the Clarke-McNary Act, calling for more generous federal aid in controlling insect depredations and urging all agencies to devote more time and money to education for protection and perpetuation of the forests.

The Western Forestry and Conservation Association is composed of forty local fire and forestry associations and lumber companies working together on forestry and protection problems. It covers the five states of California, Oregon, Washington, Idaho and Montana.

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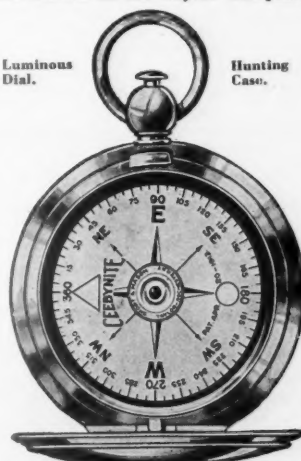
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### HELP WANTED

**WANTED: SKILLED TREE SURGEON:** Year round position open as foreman in vicinity of New York City for thoroughly trained tree surgeon. Good wages, winter guarantee, car furnished to right man. Old Davey man preferred. State qualifications in detail and give references in first letter. Address Box 33, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (1-2-3)

### POSITIONS WANTED

**NURSERYMAN** would like to acquire a position with a nursery doing business on a large scale. Have had 2 years' experience under one of the best nurserymen in the East. Have acted in the capacity of foreman for one year in a nursery containing 300 seed beds and 3,000,000 transplants. Am at present attending a forestry college but shall be free to accept position on or after January 1, 1925. Address Box 29, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (12-1-2)

**MAN** with forestry training and experience in forestry work (married), desires position as care taker on private estate. Available at once. Address Box 30, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (12-1-3)

**TECHNICAL GRADUATE:** 8 years' experience in paper mills and woods operations, now an executive, desires change. Can manage an estate. Address Box 31, AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (1-2-3)

**GRADUATE FORESTER.** Swedish. 5 years' experience in Sweden. 1½ years in United States. Qualified to handle timber appraisals, tree planting, surveying and general forestry problems. Age 28. Address Box 32, AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (1-2-3)

**POSITION WANTED** as superintendent of estate or with lumber company. Eight years foreman in all branches of forestry, two years superintendent of forest reservation, six years superintendent of wood and lumber business. 35 years of age. Address Box 34, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (2-3-4)

them who owns the land upon which they graze their animals; all they want is the grass and the water holes. Through all history, they have asserted by force of arms and by legal means their rights to these things on the public lands and the lands of others. As a result, in Europe and elsewhere, a whole series of morally and legally recognized grazing "rights" on public and private lands have grown up. These "rights" are jealously clung to long after they have ceased to be valuable, even when the lands burdened by them should, in the interests of national economy, be returned to forests.

These same "rights" constantly hamper the public and their agents, the forest officers, in endeavors to place reasonable bounds upon the grazing industry and to protect the forest. In Europe, they have been, and still are one of the chief obstacles to the practice of forestry upon a large enough scale to meet the national needs of the different countries.

To allow such "rights" to become established on our western National Forests today, even though surrounded by apparent legal safeguards, when we are straining every nerve to meet an inevitable timber shortage, would be nothing short of a step toward national destruction.

It is perfectly true, as many will assert, that meat, hides, and wool are as important to human existence as timber, perhaps more so, and if we must forego shelter

to obtain food and clothing, it is better to do so. But, if the timber on our Western National Forests should never be worth ten cents an acre, the climate makes the forest sole guardian of the water which is the source of life for the region. Removing the forest means erosion of the mountain slopes, and floods in the valleys both of which are as destructive to grazing as to other interests. To let the stock interests destroy the forest is to spell their own destruction. We have enough range lands if properly managed to supply our needs without trespassing on our remaining all-too-scanty forests.

All this is said without any hostility to the stock men. Their business is legitimate and necessary. To a large extent, they are gripped between modern circumstances and age-old traditions from which the public, for its own protection, and in the long run that of the stockmen also, must break them loose, not by according them special "rights" on the National Forests and Public Domain, but by compelling them to work out their own salvation on a sound cultural and economic basis.

In the series of articles to follow, in later issues, the history of grazing in its relation to forests and forestry in various countries which have had long and bitter experiences will be traced. The British Isles will be the subject of the first article, which will appear in the March number.

## New Officers of the American Forestry Association

### President

GEORGE D. PRATT, of Pratt Institute, New York City, re-elected.

### Treasurer

GEORGE O. VASS, Vice-President of the Riggs National Bank, Washington, D. C., re-elected.

### Vice-Presidents

W. W. ATTERBURY, Pennsylvania, President, Pennsylvania Railroad; JOHN W. BLODGETT, Michigan, Former President, National Lumber Manufacturers' Association; W. R. BROWN, New Hampshire, President, The Brown Company; ALLEN CHAMBERLAIN, Massachusetts, Special writer, *Boston Transcript*; FRANCIS CUTTLE, California, Member, California State Board of Forestry; HERMAN DIERKS, Arkansas, President, Dierks Lumber and Coal Company; DR. CHARLES W. ELIOT, Massachusetts, President Emeritus, Harvard University; ANSON C. GOODYEAR, Louisiana, President, Great Southern Lumber Company; GEORGE BIRD GRINNELL, New York, Author and Explorer; CHAUNCEY J. HAMLIN, New York, Chairman, Executive Committee, National Conference on Outdoor Recreation; WILLIAM M. JARDINE, Kansas, Secretary of Agriculture;

CHARLES L. McNARY, Oregon, United States Senator and Joint Author, Clarke-McNary Law; GIFFORD PINCHOT, Pennsylvania, Governor of Pennsylvania; THEODORE ROOSEVELT, New York, Explorer and First Chairman, National Conference on Outdoor Recreation; ALBERT SHAW, New York, Editor, *Review of Reviews*; LOUIS J. TABOR, Ohio, National Grange; HORACE L. TILGHMAN, South Carolina, President, Southern Forestry Congress; FRANK A. WAUGH, Massachusetts, Massachusetts State Department of Education; JOHN W. WEEKS, Massachusetts, Former Secretary of War and Author *Weeks Law*; WILLIAM ALLEN WHITE, Kansas, Editor and Author, and MRS. FRANCIS WHITLEY, Iowa, Forestry and Wild Life Refuge Committee, General Federation of Women's Clubs.

### Directors

*Serving one year*  
DR. JOHN C. MERRIAM, District of Columbia, President, Carnegie Institution of Washington.

*Serving two years*  
CHARLES SHELDON, District of Columbia, Author and Explorer.

*Serving five years*  
F. W. BESLEY, Maryland, State Forester.  
EX-GOVERNOR FRANK O. LOWDEN, Illinois, Chairman, American Forest Week Committee.  
GEORGE W. SISSON, JR., New York, American Pulp and Paper Association.

The committee which counted the ballots and certified the results of the 1926 election consisted of Mr. Arthur C. Ringland, chairman; Mr. Harry Lee Baker and Mr. John B. Cuno.



**Pine Institute Publishes Tabloid Essays**

Short statements of forestry facts are being widely published in the newspapers of the southern pine region under the general title of Tabloid Essays. These are prepared by O. H. L. Wernicke, President of the Pine Institute of America, Inc. "Pointed Pine Paragraphs" is the title of the following release which is typical of the series:

"When a farm is too far from a forest in the coastal states of the South, the crops on that farm suffer. When crops suffer, the whole community is poorer.

"When rains come, the forests help to stop the washing away of soluble salts in the soil, which farmers call 'fertility.'

"When drouths come, the forests are a sponge which holds the extra moisture needed to keep crops around them healthy.

"When winds come, the forests break their force. When frosts come, the forests temper them, and in the heat, the forests help to keep the neighborhood cooler.

"Your community needs forests for the sake of its farms, if for no other reason."

**Trunks of Trees**

Trunks of trees in a deep, deep wood:

In that fern-lit dusk they loom—  
Massive cedar, hemlock, spruce—  
Silver shafts against the gloom;  
Fathom their beauty no man could:  
Lonely trunks in a deep, deep wood.

Trunks of trees against the sky:

Dark they rise, in curveless grace,  
Straight they cut the sky behind  
Into many a panelled space:  
Nor man nor book can satisfy  
Like trunks of trees against the sky.  
—Olga Weydemeyer.

## SMITH FIRE FIGHTERS AND SPRAYERS COMBINED

**Knapsack—Sturdy Pump**

5-gallon Knapsack Tank made of heavy galvanized steel or all brass, as ordered; straps for carrying over shoulder like a pack basket. All brass heavy double action pump; 3-ft. half-inch 5-ply hose; brass nozzle No. 1 throws solid stream 50 ft. for fighting fires. No. 2 wide coarse spray for spraying tall trees. No. 3 large broad fine mist spray for spraying shrubbery, small trees, garden vegetables, etc. No. 4 wide spray for spraying fruit trees, sprinkling lawns, whitewashing stables and poultry houses. Pump has great force, works easy, one brass barrel working back and forth inside the other. Hose may be detached and any length hose used, up to 100 ft. Then with bucket strainer in one end of hose, can be used in a barrel or creek. Nothing to wear out. Used extensively for fighting forest fires and for all spraying purposes.

**Banner Compressed Air Pump**

4-gallon heavy galvanized steel or all brass tank, as ordered. Pump and pump castings made of heavy brass. Carried by handle, or over shoulder by carrying strap. 2-ft. half-inch, 5-ply hose with brass automatic shutoff control nozzle. Brass pump screws in to center of tank. To operate, simply fill tank with water or spraying solution and easily pump in a few strokes of air, when the labor is done, then work the nozzle which throws a long solid stream for fighting fires or large broad fine mist spray for spraying shrubbery, garden vegetables, etc. One pumping of air will empty tank, therefore, no labor. Well built for long hard service. A great machine for fighting forest fires and for all spraying purposes.

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When you build a FIRE.

**WHAT ARE YOU DOING TO HELP PERPETUATE THE FOREST?**

**YOU CAN HELP.** It will take only a few minutes of your time. Urge your friends to become members of The American Forestry Association, which stands for the protection and perpetuation of American forests in a sane, conscientious way. It is the least you can do to **HELP KEEP FORESTS OUTDOORS AND IN.**

The makers of Ipana Tooth Paste believe in protecting and preserving forests as well as teeth and gums.

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### Christmas in the Big Trees

Christmas services at General Grant National Park were held for the first time this season at the foot of the great tree which carries the name of General Grant.

The idea of the Christmas ceremony and the use of this ancient sequoia to typify the Christmas tree for the entire country, was sponsored by civic associations of Sanger, California, a city in the rich valley some 54 miles below General Grant National Park. More than one hundred and fifty cars from eleven different states made



THE GENERAL GRANT TREE

the pilgrimage to the Park and messages were read from President Coolidge, Stephen T. Mather, Director of the National Park Service, Governor Friend W. Richardson of California and other prominent people.

The idea of holding an annual Christmas service under the shadow of this great giant has been endorsed by groups of people throughout the country and it is pointed out as a fitting center for Christmas services because it had been growing for thousands of years at the time of the birth of Christ.

### Our First Conservationists

None other than Dan C. Beard, National Scout Commissioner of the "Boy Scouts of America" is authority for the following:

"Our first conservationist was the famous old Quaker Scout, Daniel Boone. In the Journal of the Proceedings of the House of Delegates and Representatives of the colony of Transylvania, begun Wednesday, the 23rd of May in the year of our Lord 1775 and in the 15th year of the reign of his Majesty, the King of Great Britain.

"On motion of Mr. Daniel Boone, leave is given to bring in a bill to preserve the game, and ordered that Mr. Boone, Mr. Davis, Mr. Harmon, Mr. Hammond and Mr. Moore, be a committee for that purpose."

### Chestnut Stumps Rich in Tannin

The stump wood, root wood, and root bark of the American chestnut tree are very rich in tannin. This is a discovery recently made by chemists of the United States Department of Agriculture. On the average sound root, they say, the bark was found to contain more than 30 per cent of tannin, and root wood more than 17 per cent. This yield is fully twice as great as that obtained from the trunks and limbs of the tree, now our most important domestic source of tannin for commercial use.

This work suggests the possibility of increasing our domestic supply of tannin through the commercial utilization of chestnut stumps, roots, and slab wood, particularly the slab wood selected from trunk and butt logs.

### Tree Pullers Spread Disease in New York

According to Conservation Commissioner Alexander McDonald of New York there should be a law requiring every person who transports a tree or trees for planting for decorative, ornamental or sentimental purposes to secure a certificate showing where and from whom the tree was obtained and that it is free from disease. The commissioner has come out with a vigorous statement deploring the practice of pulling wild seedlings or collecting greens from the woods without regard to the rights of farmers and timberland owners or to those of the public who respect and love natural playgrounds and forests. Vandalism in this respect is too common throughout the country and must be stopped in New York, says Mr. McDonald.

### Mountain Peak Named for Late Secretary of Agriculture

Honoring the memory of Henry C. Wallace, Secretary of Agriculture from March, 1921, until his death in October, 1924, a mountain peak in the Absaroka National Forest in Montana has been named Mount Wallace by action of the United States Geographic Board. The peak, about 10,600 feet high, is in Pike County and is considered one of the gems of the Absaroka Range.

### Spring Arbor Day for Pennsylvania

To further a special tree planting project for the arbor days, April 9 and 23, 1926, the Pennsylvania Department of Forests and Waters is reserving one million white and Scotch pine trees to be allotted for planting to Pennsylvania schools.

### Tennessee Reclaims Eroded Lands

Projects to reclaim gullied lands undertaken in west Tennessee by State Forester R. S. Maddox ten years ago and recently inspected show amazing results. In one case, gullies ten feet deep when the work was started, are filled and now producing a stand of locust from which farm posts are being harvested. In another case land which a few years ago did not produce more than two barrels of corn per acre is now covered with a beautiful stand of blue grass and locust trees.

## This type of Galvanized Steel Tower

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to meet the requirements of Forest Service is most widely used.

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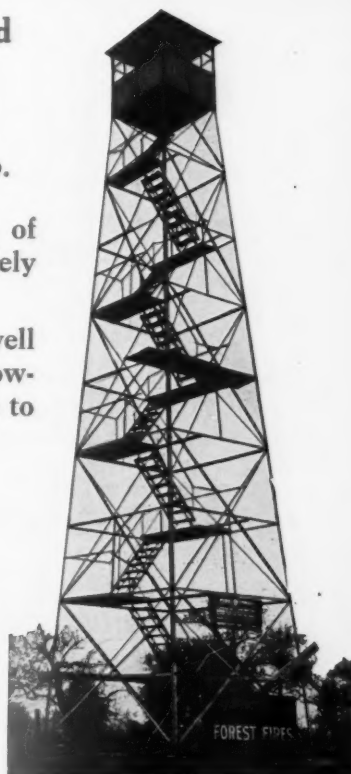
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## THE BEST FIRE-FIGHTING MACHINE

This photograph of back-firing to save a heavy growth of timber, Mount Hood National Forest, Oregon, was taken by the United States Forest Service and is reproduced here by courtesy of the Elks Magazine.

The fire-fighting chief says: "The Hauck torch is the best piece of equipment that we have found for setting back-fires. It is light and all the firing can be done by one experienced man. It eliminates the dangers of back-firing to a minimum. It enables one to start fires when material is too damp to be ignited by any other means."

The fire-fighters of the United States recommend the HAUCK TORCH to the fire-fighters of all of the countries of the world.

The HAUCK TORCH is also extremely useful in cleaning up small strips of duff along the inner edges of trails or in burning moss from tree trunks at night.

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**Y**OU hear less today than you used to about the scarcity of White Pine. The reason is that in almost every community there is a growing number of lumber users—foundrymen, pattern-makers, skilled carpenters and fine artisans of one kind or another—who cannot be satisfied with any other wood than White Pine.

These men know White Pine for its remarkable durability under exposure to the weather—for its fine even texture—its ease of working—its ability, once in place, to hold true without warping or twisting or opening at the joints.

They have used other woods and they know the difference.

And because they have continued to demand it you will find in almost every community today at least one of the local lumber yards carrying a stock of Genuine White Pine and building a reputation for personal service and fine quality lumber that helps them to sell many a bill of ordinary dimension and boards.

**T**HAT makes it increasingly difficult for the man who tries to induce you to accept a substitute on the excuse that "you can't get Genuine White Pine any longer."



To disprove such a statement you have only to walk along to his competitor's yard and select just the pieces you want for the work in hand—not one of the woods sometimes sold as White Pine, but Weyerhaeuser Guaranteed Genuine White Pine, each piece species marked for your protection—made, processed and seasoned according to Weyerhaeuser standards of manufacture.

**I**F your local dealer does not have the particular grade of White Pine you want, have him get in touch with the nearest Weyerhaeuser representative or write us.

Weyerhaeuser Mills are manufacturing year in and year out hundreds of millions of feet of Genuine White Pine available to dealers in carload shipments from any one of eight different mill stocks, or mixed car shipments on 24-hours notice from a large centrally located distributing plant.

It is remarkable how easy it is to get White Pine when you find the dealer who is merchant enough to recognize that the biggest sales leader he can have is a regular following of local buyers, who know from experience that even at a higher price per thousand feet, Genuine White Pine in terms of the job in hand is more economical in the long run.

## WEYERHAEUSER FOREST PRODUCTS SAINT PAUL • MINNESOTA



Producers for industry of pattern and flask lumber, factory grades for remanufacturing, lumber for boxing and crating, structural timbers for industrial building. And each of these items in the species and type of wood best suited for the purpose.

Also producers of Idaho Red Cedar poles for telephone and electric transmission lines.

Weyerhaeuser Forest Products are distributed through the established trade channels by the Weyerhaeuser Sales Company, Spokane, Washington, with branch offices at 208 So. La Salle St., Chicago; 220 Broadway, New York; Lexington Bldg., Baltimore; and 806 Plymouth Bldg., Minneapolis; and with representatives throughout the country.



## Yale School of Forestry

Established in 1900

A graduate department of Yale University, offering a two years technical course in forestry leading to the degree of Master of Forestry.

Special opportunities are provided for advanced work and research in the laboratories and the school forests.

For further information and catalog address

### The Dean of the School of Forestry

New Haven, Conn., U. S. A.

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Members may select from them with the full assurance that they are choosing from the best.

## Harvard Forest

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A forest experiment station of two thousand acres, 14 years under management on a sustained yield. Large variety of silvicultural treatment in progress. Logging, milling, and marketing annually carried on. Extensive plantations established from the Forest nursery.

Competent graduate students accepted as candidates for degrees of M. F. or D. S.

RICHARD T. FISHER  
Director

## The New York State College of Forestry

Syracuse University  
Syracuse, N. Y.

THE State Forest Experiment Station of ninety acres at Syracuse, the Charles Lathrop Pack Demonstration Forest of 1,000 acres at Cranberry Lake (home of the Sophomore Summer Camp), three other field experiment stations, the Roosevelt Wild Life Forest Experiment Station, a modern pulp mill, a well-equipped sawmill, a complete dry-kiln plant, the biological laboratories, and an excellent reference library afford unusual opportunities for investigative work. A four-year course in Pulp and Paper Manufacture and a short course each spring in Dry-kiln Engineering and Lumber Grading are regularly given. In addition to the regular four-year undergraduate courses, special courses are offered that lead to the degrees of Master of Forestry, Master of City Forestry, Master of Science, Doctor of Philosophy, and Doctor of Economics.

FRANKLIN MOON, Dean

## Oregon School of Forestry

Located in the center of the last great stand of virgin timber in the United States.

Offers four and five-year courses in professional forestry, logging engineering, and lumber manufacture.

Field work in the magnificent Oregon forests, easily accessible from the school. The largest logging operations and lumber manufacturing plants near at hand.

Summer work readily obtainable in the Forest Service, in logging camps, and in the mills.

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## FORESTRY TRAINING

*In the Heart of the Rockies*

### The Colorado School of Forestry

A Department of Colorado College  
Colorado Springs, Colorado

Four and five-year undergraduate courses and a two-year graduate course in technical forestry, leading to the degrees of Bachelor of Science in Forestry and Master of Forestry.

Forestry teaching in spring and fall at Manitou Forest (a 7,000 acre forest belonging to the School) and the winter term at Colorado Springs.

Write for announcement giving full information.

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Opportunities for full technical training, and for specializing in forestry problems of the northeastern States and Canada.

Eight-weeks' camp-course required of all Seniors in Forestry, in practical logging operations in northern Maine, under faculty supervision.

For Catalog and further information address

JOHN M. BRISCOE  
Professor of Forestry

## School of Forestry

University of Idaho  
MOSCOW, IDAHO

Offers thorough training in Practical Forestry, preparing for federal, state and private work.

Four and Five Year Courses, leading to the degrees of Bachelor of Science in Forestry and Master of Science in Forestry respectively.

Opportunity is given to specialize in General Forestry, Logging Engineering, and Range Management.

Large logging and milling operations, important wood-working industries, also extensive federal, state, and private forests near at hand. Excellent opportunity for summer employment.

For further particulars address

FRANCIS G. MILLER, Dean

## DELICIOUS BLUEBERRIES FROM YOUR OWN GARDEN!

As easy to obtain as any other garden berry if you get real nursery grown blueberry plants.

**The Mayo Nurseries** offer sturdy blueberry plants with perfect root systems, grown in the heart of the Berkshire Hills. Hardy rapid growers and heavy yielders, bearing usually the first year—not the ordinary small seedy huckleberry, but large full-fleshed blueberries that taste delicious.

A corner of your ground can be filled with blueberry bushes, a pleasing spectacle with their brilliant foliage reddening the landscape till late frost.

**Raspberries**—new varieties that a few words cannot attempt to describe.

**Currants and Gooseberries**—on charming little trees—an ornamental novelty that will yield heaps of clean, delicious fruit.

**Grapes**—extra fine bearing vines with heavy root systems and fruiting canes for quick results.

**Bearing Age Fruit Trees**—Peaches, Pears, Cherries, Plums and Quinces with wonderfully developed fibrous root-systems. These are specimen grown Trees—soon to bear fruit.

*All Mayo Nursery Berry Bushes and Fruit Trees are guaranteed to have wonderfully developed root systems. This insures you fruit in greater abundance, of a higher flavor and in a shorter time.*



### New 1926 Fruit and Berry Catalogue

Beautifully illustrated in colors now ready for gratuitous distribution. Write for it. This catalogue does not contain a confusingly large number of varieties but offers a selection of fruit trees and berry bushes which our experience has proved to be the most satisfactory because of their hardiness against climatic changes, prolific yielding, delightful quality of fruit and early bearing.

*"That The Ground Surrounding Your Home May Be of Unusual Beauty The Year Round"*

## MAYO LANDSCAPE SERVICE

creates Pictures with Trees, Shrubs and Perennials. We not only supply the finest ornamental and fruiting plants of all descriptions, but put at your disposal the services of a well trained staff of landscape designers who know plants and how to handle them for biggest effect from smallest outlay.



A creative development at Greenwich, Conn., Nov. 1925, executed in its entirety—plans, plants and planting—by the Mayo Landscape Service

Rock Gardens, sunken gardens, formal gardens, woodland and bridle paths, artificial lakes, waterfalls, garden pools and grottos—whatever you desire we can help you to its fulfillment.

Large estates or small country and suburban homes—no problem too big—no job too small for our most painstaking service.

We offer no stereotyped plans—each problem must express your own desires and your own individuality. Landscape designs are prepared complete in every detail from surveys, which include grading plans for lawns and terraces, location and grouping of buildings, designs for entrance gates, drives, masonry and concrete construction for garden and retaining walls, architectural details for arbors, pergolas, garden gates, tea houses and garden furnishings.

We can also furnish labor and equipment under expert supervision, thus relieving clients of every care incident to the planting and execution of the work.

Now is the time to arrange for an interview with our landscape designer for your spring work. Correspondence solicited.

## *Mayo Nurseries, Inc.*

*Nurserymen and Landscape Architects*

923 Ellwanger & Barry Building

Rochester, New York



